PREDICTIVE ROLES OF STRESS, SELF-EFFICACY, ATTACHMENT, AND CHILD-ADHD SYMPTOM SEVERITY IN MOTHERS' OPENNESS, AND MOTIVATION TO BE INVOLVED IN ADHD TREATMENT

By

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Abstract

Attention-Deficit Hyperactivity Disorder (ADHD) is the most commonly diagnosed psychiatric condition of school-aged children, and is the number one presenting complaint of parents who seek psychological services for their kids in the United States (American Psychiatric Association [APA], 2013). Over the past decade, we have witnessed a drastic increase in the rate of ADHD diagnosis; from 2007 to 2012, there was a 42% increase in child populations, and this rate continues to rise (National Survey of Children's Health, 2013). Given the rising rates, establishing and implementing effective treatment for these children is of paramount importance. Many options have been established as effective in the treatment of childhood ADHD, including behavioral interventions (Fabiano et al., 2009), medication management (Leggett & Hotham, 2011), and parent training/psychoeducation (Ferrin et al., 2014). Research suggests treatments that combine the aforementioned techniques, where parents are highly involved in the child's care, produce the best treatment results (Leggett & Hotham, 2011). Furthermore, for children aged six and younger, behavior therapy is recommended as the first line of treatment (Center for Disease Control and Prevention [CDC], 2017). However, medication is still the primary means of treatment, which is used much more often than behavioral interventions, or a treatment that combines the two (National Institute of Mental Health [NIMH], 2011). To address this pattern, we need to understand parents' experiences in their decision-making regarding treatment for their children's ADHD. While research has been done exploring the impact of institutional factors (i.e., pharmaceutical companies) on this pattern, less research has been completed examining familial factors that may affect this trend. Therefore, this study was designed to examine several familial factors that may be associated with these decisions. Given that mothers are more likely to present for treatment services for their children and make decisions regarding

treatment and subsequent implementation at home and beyond (Fabiano, 2007), factors which influence mothers' decision-making are of particular importance. Based on the available literature and the author's clinical observations, the current study identified maternal stress, maternal self-efficacy, the child-ADHD symptom severity, and a mother's relationship with her child (attachment), as potential predictors of a mother's motivation to be involved in treatment and her openness toward different treatment modalities.

The study used a descriptive correlational design and collected data from 200 participants through MTurk, an online survey system. The results showed that there is a dynamic interplay of these factors in relation to a mother's openness toward different ADHD treatments, her top choice of treatment for her child, and her level of motivation to be involved in that treatment. Specifically, mothers who reported higher levels of stress are more likely to be open to medication-only treatment, and prefer it if given the choice. In addition, older mothers who reported strong mother-child attachment, and also had a child whose symptoms are interpreted as severe, were more likely to be interested in behavior therapy for their child, and more likely to be motivated to be involved in general. Regarding openness to multimodal treatments, study variables were not significant predictors. Interestingly, results indicated that mothers overwhelmingly reported this treatment would be a good option for their child, but also ranked it as the least preferred option between the three, and it was not commonly used for participants' children's actual treatment. The meaning and implication of these findings were discussed in the context of the existing literature. Suggestions were made for future research in this area.

Key Words: ADHD, attachment, diagnosis, involvement, self-efficacy, stress, symptoms, treatment

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Chapter 1

Introduction

Health professions have seen a steady rise in the rate of ADHD diagnosis over the past few decades. From 2004 to 2012, two million children in the United States were diagnosed with ADHD, one million of whom received psychostimulant medication to treat symptoms. This number has only increased. The majority of these children are diagnosed at a young age, with about half diagnosed by age seven (CDC, 2013). Rates of diagnosis have continued to increase over the past few years (APA, 2013), resulting in a surge of public and private attention towards ADHD. With the number of children being diagnosed with ADHD reaching an all-time high, the mental health community is under pressure to establish and disseminate effective treatments that help these children lead productive and happy lives.

Effective treatments have been established to treat children with ADHD. The prescription of psychostimulant medication is currently the most widely used and available option for treatment of ADHD symptoms, particularly amongst teens (NIH, 2011). Stimulant medications have been found to help by increasing attention and focus, as well as controlling impulsive behaviors (Leggett & Hotham, 2011). However, research evidence has shown that treating ADHD by medication alone is often not sufficient, and that behavioral interventions are needed (Charach et al., 2013). Interventions that address emotional, behavioral, and skills-deficits, have been found to be particularly effective by targeting symptoms not directly affected by medication (Fabiano et al., 2009). In addition, as described in the American Academy of Pediatrics (AAP) policy and guideline for treatment ADHD (AAP, 2011), consistent behavioral interventions are strongly recommended across age groups even when medication is prescribed,

to ensure the most effective and lasting care. The AAP further adds that parent involvement and clear communication between providers is crucial.

From the perspective that ADHD is a neurodevelopmental disorder requiring long term treatment and symptom management, treatment plan design should consider both the short term and long term needs of the child to best support him or her. Children with ADHD are much more likely than their peers to be diagnosed with other disorders such as a learning disability, conduct disorder, or mood disorder. Many behavioral therapies teach problem-solving techniques, relaxation skills, affect regulation, and anger management, all of which are shown to be helpful in addressing these commonly co-occurring disorders, in addition to ADHD (Vance, Winther, & Rennie, 2011). Moreover, a large portion of behavioral therapies address social skills, such as relationship difficulties, a common problem area for children with ADHD (APA, 2013). Behavioral therapies that include social skills training have also been found to be effective for improving social competence within family units, and family cohesion in general, over children who received no treatment (Pliszka, 2007).

To succeed in behavioral treatment, parent or caregiver involvement is of paramount importance, and is one of the strongest predictors of successful treatment (AAP, 2011). A meta-analysis of articles published between 1980 and 2010 showed parent training and psychoeducation significantly contributed to the reduction of ADHD symptoms, approaches that require significant involvement. In a follow-up double-blind randomized control-group study, Ferrin et al. (2014) demonstrated that families who were placed in a weekly psychoeducation and training program, in addition to treatment as usual, showed significantly higher rate reductions in their child's global ADHD index and in negative cognitive domains, in comparison to the control group.

Research evidence has demonstrated that multimodal approaches for ADHD management and treatment offer the best chance of symptom alleviation (AAP, 2011; APA, 2013; CDC, 2017; NIH, 1999). In this context, multimodal approaches typically include the combination of psychostimulant medication, conventional behavioral interventions, and when available, parent skills training and psychoeducation (often a part of behavioral interventions), in addition to classroom management strategies and learning assistance programs (Leggett & Hotham, 2011). The importance of multimodal approaches such as those described, which offer tiered support, is particularly important given the high frequency of children that prematurely discontinue medication treatment. This trend is particularly concerning due to the fact that long-term outcomes for children with ADHD indicate they are at greater risk of significant problems if they discontinue treatment (AAP, 2011). According to the AAP, this pattern is at least partially maintained as parents of children with ADHD often have ADHD themselves, therefore needing extra support to provide medication on a reliable basis and institute consistent behavioral treatment adherence. Nevertheless, the vast majority of children who present with ADHD only receive one or two facets of intervention options, with parents often opting for a single treatment and underutilizing behavioral interventions (Leggett & Hotham, 2011). For example, Concannon and Tang (2005) assessed the treatment choices made by 226 parents of children who were diagnosed with ADHD. Of these, 82% had trialed medication (with 66% still taking medication at the time of the study), and 42% had attempted some sort of behavioral interventions. Only 55% of parents provided either "satisfied" or "very satisfied" ratings for their child's care. Parents who reported the most satisfaction with their child's care were those whose children were currently on medication. However, 72% of parents felt behavior interventions to be highly useful, but felt that these services were not as available to their

children. Overall, the authors stated "the amount of behavioral assistance available to such children is pitifully inadequate, despite its proven value" (p. 628).

The fact only a small proportion of parents choose multimodal care is not necessarily surprising—parents often attempt to negotiate children's behaviors on their own, often for years, prior to seeking professional help. Therefore, once families often do present for care, they are in acute need of guidance and expertise in how best to address their child's needs effectively and efficiently (Rigney, 2013). A "quick fix" mentality is often strong in these parents and presents an obstacle in making the best treatment decisions. While medication is effective for many in addressing symptoms of ADHD, these medications are Schedule II drugs under the Controlled Substances Act, and its usage needs to be monitored accordingly (U.S. Department of Justice, 2017). Given the nature and legal standing of these drugs, mental health practitioners have an increased responsibility to help parents understand the benefits and limitations to all treatments, including medication, in order to make the best and most informed treatment decisions for their children. Helping parents choose and then effectively implement treatment is crucial, as children with ADHD are significantly more likely than their non-ADHD peers to become involved in the judicial system, become less productive adults (Bernier & Siegel, 1994), and to develop additional problems such as depression, low self-esteem, and marked academic difficulties (DuPaul & Stoner, 1994). Given the evidence that multimodal treatments are the most effective option, it seems the best way to help prevent negative outcomes such as these, is to increase parents' openness and interest in implementing multimodal treatment, with a particular focus on ensuring a behavioral-therapy component is present.

Helping parents choose the treatment option that is right for their child and family, while also encouraging openness to a multimodal approach, is challenging. After all, with each

additive component of treatment, we are asking a lot of parents' time, energy, and potentially, of their money (Klora, Zeidler & Greiner, 2016). Negotiating these demands is hard, especially given the rising costs of many treatments, the availability of appropriate services, and parents' means, be it financial or other, to ensure all these avenues are pursued and consistently implemented. In addition, there are important cultural considerations, as each culture has different rates, symptom-related factors, and perceptions of ADHD (APA, 2013). Given all these aspects, when helping a parent decide upon an effective treatment that adheres to our best practice guidelines, it is important to understand the multifaceted factors with which a family presents (including demographic influences, and emotional), and how these factors influence parents' openness to different treatments, and their motivation to be involved in treatment. Thus understanding variables that contribute to parental openness to, and motivation to be involved in treatment in general, can help us better disseminate our best practice multimodal treatments that are statistically most likely to help children and their families navigate ADHD. In the end, the success of any treatment relies on parental involvement to ensure compliance, improvement, and the continuation of treatment (Tarnowski, Simonian, Park, & Bekeny, 1992).

While a significant body of research has examined the impact of demographic variables such as race, socioeconomic status, and gender on ADHD treatment choice and outcomes (APA, 2013), less research has examined the more subtle patterns that may influence parents' openness to different treatments and their ultimate treatment choice. In addition, many studies that do examine more subtle patterns only examine factors relative to the parent or the child, while few examine then simultaneously. Lastly, as mothers are significantly more likely to seek treatment for their child, be the primary voice in treatment choice, and are more involved in the subsequent treatment implementation (Fabiano, 2007), examining their view specifically, is exceedingly

important. Therefore, the purpose of the current study is to explore potential variables specific to the mother, child, and the mother-child dynamic, and how the presence and interaction between these variables relate to maternal openness, preference, and motivation for involvement, in relation to treatment choice for their child's ADHD. The variables chosen for the current study were based on theory and past literature speaking to their importance in children's mental health treatment in general, and treatment for ADHD more specifically. These variables are maternal stress and maternal self-efficacy (variables specific to the mother), child-ADHD symptom severity (child variable), and mother-child attachment (mother-child dynamic variable). The study's results will inform practitioners treating children with ADHD in terms of how to address issues related to mothers' openness toward different treatments, their motivation to be involved in treatment, and how this impacts the pursuit of multimodal treatment specifically.

Chapter II

Review of Literature

In order to position this study in the context of the relevant literature, the following section presents a review of research trends in ADHD diagnosis and treatment, current treatment options available (medication, behavioral interventions, parent training and psychoeducation, and multimodal), the importance of parental openness toward treatment and motivation for involvement, and lastly, an exploration of the predictive variables of interest in the current study (maternal stress, maternal self-efficacy, mother-child attachment, and child-ADHD symptom severity).

Current Trends in Assessment and Diagnosis of ADHD

As ADHD is historically considered a childhood diagnosis, emerging or becoming problematic during the school-aged years, most individuals are diagnosed between the ages of four to 17 (APA, 2013). The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5; APA, 2013), defines three major presentations (types) of ADHD. These are predominantly inattentive presentation, predominantly hyperactive/impulsive presentation, or combined presentation. In children and adolescents, criteria for each presentation is met when the individual demonstrates six out of nine symptoms in that domain. The combined presentation criteria are met when the child/adolescent displays six criteria in both the inattentive and hyperactive/impulsive domains. In addition, regardless of presentation, several inattentive and/or hyperactive/impulsive symptoms must be present prior to the age of 12, there must be clear evidence these symptoms interfere or reduce functioning, and the symptoms must be present across settings (i.e., home and school). A child may be diagnosed with any one of the three presentations; thus a child may be diagnosed with ADHD even if he or she is not

hyperactive or impulsive. According to the DSM-5, younger children often demonstrate more issues with hyperactivity, and as children age, more problems related to focus and attention emerge or are sustained. Following this progression, often by the time a child diagnosed with ADHD reaches adulthood, hyperactive symptoms have diminished. The main theory behind this shift in symptom presentation is due to the development of the frontal lobe, which plays a large role in executive functioning abilities such as behavior control, modulation of impulses, in addition to increased capacity to focus and allocate attentional resources. Given that the frontal lobe is not fully developed till our mid-twenties, many individuals with ADHD see symptoms diminish as their brains develop and these executive functioning capacities are strengthened, learn more skills to cope, and establish environments conducive to their functioning (Krain & Castellanos, 2006). Research based on longitudinal neuroimaging studies suggests brain maturation for individuals with ADHD is delayed a few years relative to individuals without ADHD. These delays were found particularly within the frontal lobes, but also within the striatal circuitry, the cerebellum, and the parietal, temporal, and motor cortices (Vaidya, 2012). Even with potential increases in functioning, a substantial proportion of individuals remain significantly impaired into adulthood, speaking to the chronic nature of ADHD (APA, 2013; Krain & Castellanos, 2006). Meaning, ADHD is a condition that affects many individuals across the lifespan and overall, and is considered a chronic condition (CHADD, 2016). In addition, with some individuals, particularly those that display impulsive symptoms into adulthood, the development of antisocial disorder, or other disorders characterized by a lack of impulse control, may develop (APA, 2013).

As the DSM-5 (APA, 2013) also notes, there are significant differences in the rate in which girls versus boys are diagnosed with ADHD. According to survey data gathered by the

CDC from across the United States (CDC, 2011), boys (13.2%) were more likely than girls (5.6%) to have ever been diagnosed with ADHD. In addition, boys are more likely to display hyperactive/impulsive symptoms, while girls more commonly display inattentive symptoms. These rates continue in to high school where about one in five boys were estimated to be diagnosed with ADHD, compared to one in 11 girls.

Given the rising rates of diagnosis, increased attention has been given to ensuring that evaluative and diagnostic practices reflect the best practice guidelines, which according to the AAP (2011) are:

> To make a diagnosis of ADHD, the primary care clinician should determine that Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria have been met (including documentation of impairment in more than one major setting), and information should be obtained primarily from reports from parents or guardians, teachers, and other school and mental health clinicians involved in the child's care. The primary care clinician should also rule out any alternative cause (quality of evidence /strong recommendation).

While the guidelines are a helpful starting point, they are intended to help physicians make ethical diagnoses and build efficacious treatment plans, and many within the psychiatric community view them as insufficient (Cepeda, 2006). Even though the guidelines recommend the physician include a mental health clinician in the child's care, family physicians still complete the vast majority of evaluations to diagnose ADHD. As Cepeda notes, these rates have potentially negative implications, as over half of children with ADHD are never sent to a

specialist as outlined by AAP, meaning that a significant proportion of children were diagnosed without a thorough assessment and comprehensive treatment plan.

When a child does go to a specialist for a diagnostic evaluation, there is no explicit guideline for how this complex disorder should be assessed. For instance, while screening and evaluation tools are still limited (Sayal, Letch, & Abd, 2008), the tools used vary significantly based on facility and practitioner preferences. This holds major implications for diagnosis and treatment, as many of the tools used do not show statistical agreement, though most are meant (at least relevant subscales) to measure ADHD symptomatology. For instance, Posserud et al. (2014) found that four commonly used assessment measures produced differential diagnostic implications. Given the limitations of paper and pencil assessment measures, many mental health practitioners heavily rely on parent and teacher report and observation to aid diagnosis. However, it has been observed that symptoms reported by parents and teachers often vary significantly (Snider, Busch, & Arrowood, 2003; Sollie, Larsson, & Mørch, 2013). Even within parental units, fathers tend to report significantly fewer symptoms as opposed to mothers in traditional families (Sollie et al., 2013). These factors all hold significant implications if a practitioner relies on a single evaluation tool, does not interview/give assessment measures to all parties (one or both primary caregivers and teacher(s)), or does not account for known differential outcomes in measurements.

Given these obstacles, appropriate assessment often expands beyond the work of a single practitioner. In fact, many leading experts in ADHD research state that the diagnosis of ADHD should be made on the basis of a holistic or functional assessment, which considers the unique presentation of each client (DuPaul & Ervin, 1996). This likely includes assessment information obtained from a number of different professionals and people involved in the child's life,

including a trained psychologist, a psychiatrist, the parents, and the child's teacher(s). In addition, an expert trained in distinguishing ADHD symptoms from other commonly comorbid disorders such as a learning disability, mood disorder, or conduct disorder (APA, 2013) should be involved. This would likely include an assessment that examines the child's writing, reading, language skills, and cognitive functioning abilities, among other psychosocial, neurological, and physiological factors. Clearly, such a multifaceted and comprehensive assessment process takes significant effort from all involved, to ensure careful coordination of efforts, and to ensure data gained are reliable, valid, and inclusive.

Overall, the Consensus Statement from the NIH in 1998 regarding the evaluation for ADHD still holds, that there is no one independent valid test for ADHD (NIH, 1998). However, while no one empirically based assessment protocol exists for evaluating children for ADHD, there are many factors which contribute to quality assessment. These factors include using up-to-date psychometrically sound measures, appropriately considering differential diagnoses, and using a multidisciplinary assessment practice which involves the inclusion of many important caregivers, a psychiatrist (if medication may be needed), and a trained psychologist (APA, 2017). In an overview of the changes in guidelines for diagnosing and treating ADHD, APA outlined that as of 2016, the AAP has addressed the limitations of previous guidelines, expanding them to address larger age ranges (from 6-12 to 4-18), and the evolving view of ADHD from a trait-like condition, to a chronic condition that requires treatment on an ongoing basis. Efforts of the revisions were aimed at the goal of providing clinicians with more specific criteria and method for making a diagnosis. While the changes in policy are not a panacea, it is clearly a step towards increasing dissemination and usage of appropriate assessment measures to ensure the wellbeing of the children and families affected by our practices.

Current Trends in ADHD Treatment Post-Assessment

After a child is assessed and receives an ADHD diagnosis, there are usually multiple treatments that may be effective for this disorder. These treatments often include both pharmacological and psychological/behavioral interventions amongst others (Berger-Jenkins, McKay, Newcorn, Bannon, & Laraque, 2012). As outlined by the AAP (2011; 2016), as each treatment has its unique advantages and disadvantages, best practice guidelines recommend a combined (multimodal) treatment approach, consisting of medication, behavior therapy, and parent-training (as either a component of behavior therapy or separate). These three areas of intervention are described in the sections below, paying particular attention to the advantages and disadvantages of each. In addition, as parents are the gatekeepers of treatment for their children (NSCH, 2013), the literature pertaining to parents' treatment views (i.e., openness to different treatments and perceived quality of treatments) are also outlined.

Medication Interventions.

The rise in ADHD diagnoses has led to a concurrent spike in prescribed medication to treat ADHD symptoms, particularly among teenagers (NIH, 2011). Psychostimulants, the typical medication prescribed for ADHD, represent the most widely used and available option for treatment. The goal of psychostimulant medication is symptom-reduction. Popular psychostimulants have been found to improve attention and focus, control impulsive behaviors (Leggett & Hotham, 2011), improve noncompliance, decrease aggression, improve social interactions, and increase academic productivity (Loe & Feldman, 2007). In addition, at low doses, psychostimulant medication may improve attention and working memory (Vance et al, 2011). These stimulants are also fast-acting, producing a near-immediate reinforcement for the

child, the child's parents, and teachers, which add to their popularity (Smoot, Boothby, & Gillett, 2007).

Given the rise in usage of stimulant medication, pharmaceutical companies have worked on expanding the options available to individuals. Methylphenidates and amphetamines are first-line agents for ADHD. Their primary mechanism of action involve blocking dopamine transporters, with additional effects including blockade of norepinephrine transporters, dampening action of monoamine oxidase (which slows dopamine and norepinephrine degradation), and enhanced release of dopamine into the synaptic space (Solanto, 1998). According to Froehlich, Delgado, and Anixt (2013), more than 90% of patients respond positively to one of the psychostimulants, thought the extent of symptom-reduction varies. Overall, the beneficial effects of psychostimulants on inattention, hyperactivity, and impulsivity are well documented (AAP, 2011; AAP, 2017; Froehlich et al., 2013). As ADHD is pervasive, effecting a child at home and in school, long-acting formulations have been developed and are increasingly replacing their short-acting counterparts. Long-acting medication provides the benefits of reduced need for in school medication doses, helps address compliance issues, and allows for children to experience the benefits for longer periods. These new agents also display a slow arc in effectiveness, which addressed the common complaint of a "quick up" and "quick down" experienced by many who take the short-acting forms (Mandelkorn, 2016).

According to the Centers for Disease Control and Prevention (CDC, 2014), of the 6.1% of children within the United States currently diagnosed with ADHD in 2011, 69%, or approximately 3.5 million, were currently taking ADHD medication. For instance, Fiks, Mayne, DeBartolo, Power, and Guevara (2013) found that many parents preferred medication as the primary means of symptom reduction, despite the availability of other options such as therapy.

Of those that opt for medication, the vast majority received their diagnosis and subsequent prescription from general practitioners rather than psychiatrists or psychologists. This finding diverts from guidelines set out by the AAP (2011), outlining the need for involvement of mental health practitioners as a key part of appropriate and responsible care.

While medication is very beneficial for many, it is not a cure-all. When taken for long periods of time at young ages, growth may be slowed, particularly at higher doses (Cortese et al., 2013), which may be more pronounced due to appetite reduction often associated with stimulant medication. However, research is inconclusive regarding influence on growth, meaning this is still somewhat uncharted territory. Other problematic side effects such as stomachaches, headaches, tics, emotional problems, and rebounds (quick reemergence of symptoms once medicine has worn off) have also been reported (Silver, 2006). If the child experienced problems with anger, depression, or sleep, as Silver reported, stimulants may actually worsen those symptoms. However, some research suggests that these side effects diminish over time or only occur when children are given high doses for long periods (Froehlich et al., 2013). In addition, given the positive effects of focus and concentration, many individuals and agencies are concerned about their potential for overuse and abuse (NIH, 1998). Public concerns often emphasize the spike in prescription medication (particularly for the very young), trends for higher and higher doses of medication to being prescribed, and the potential "black market" appeal of these drugs, particularly with teens and young adults (Weintraub, 2013).

Given both the benefits and drawbacks of medication, for families who opt for medication-only treatments, a high proportion of these parents return for services within 18 months after medication had been initiated, often reporting lack of symptom reduction or unwanted side effects (Widener, 1998). For reasons such as these, some parents are hesitant to

use medication as the primary treatment for their child's ADHD. In particular, Leggett and Hotham (2011) found that parents were often resistant to give their children stimulants, and often did so only after exhausting their own personal methods. Parents of very young children (i.e., six or under) seem particularly cautious to give children medication due to concerns regarding its impact on development or unwanted side effects (Rappley et al., 1999; Smoot et al., 2007). Rappley emphasized that pharmacologic treatment for very young children is not well supported by medical literature, particularly due to their delicate and intense state of neurodevelopment and sensitively to drugs. Their study found that out of 127 children who received psychotropic medication, 50 were the age of two when presenting for treatment, and a large proportion were prescribed more than one psychotropic medication, though specifics regarding percentages and outcomes were not provided. Findings such as these have led the AAP (2011) to suggest behavioral therapy as the primary intervention for children younger than six years of age, though it clearly remains efficacious for many children and adolescents. Overall, there are many factors for parents, physicians, and mental health practitioners to reflect upon when considering medication as part of a child's treatment plan for ADHD.

Behavioral Interventions.

Given the effectiveness in behavioral therapies for a wide range of disorders across age groups, behavioral and skill-based interventions are increasingly utilized as a part of ADHD treatment. This is also likely a direct result of the AAP's (2011) guideline listing it as an important component of effective long-term treatment. Research supporting the efficacy of behavioral interventions are vast. For instance, Fabiano et al. (2008) conducted a meta-analysis of 174 studies, which included 2094 participants who participated in behavioral and skills-based treatments for ADHD. Overall, effect sizes for between-group (.83), pre-post (.70), within-group

(2.64), and single-subject studies (3.78), gave consistent evidence that behavioral interventions were affective. As the researchers noted, these effect sizes are similar to those obtained from stimulant medication. In fact, due to its well-documented success as a treatment option, certain behavioral and skills-based programs have been accepted as Evidence-Based Treatments (EBTs) for ADHD by the field and health insurance companies (Gerdes, Haack, & Schneider, 2012).

Behavioral and psychosocial/skills-based interventions are particularly recommended for younger children, given the potential effects on neurological development with short-term or long-term stimulant use. Research has shown that very young and primary school-age children benefit from interventions directed at both the home and school environments. Programs that have been found to be particularly efficacious tend to address both the emotional dysregulation component and impulsive component of ADHD. These include teaching problem-solving techniques, relaxation strategies, affect regulation, and anger management (Vance et al, 2011). In addition, social skills programs which address relationship difficulty, a common presenting symptom for children with ADHD, are helpful and should include listening skills, techniques on how to make and keep friends, and how to engage in appropriate sharing. Social skills groups have also been found to be effective for improving social competence within family units and family cohesion over children who received no treatment (Pliszka, 2007).

Behavioral interventions that identify and work to modify the antecedents and consequences of a child's behavior are particularly efficacious for instilling long-term benefits (Vance et al., 2007). Within the antecedent-consequence model, behavioral interventions, which include the parents and/or family members, seem to be particularly effective, and involve explanation and exploration of behavioral management strategies and techniques. Tutty, Gephart, and Wurzbacher (2003) studied 100 children with ADHD aged five to 12 who were

receiving stimulant medication. More than half of the children and parents were assigned to behavioral and social skills classes. Classes focused on helping the children manage their anger and other strong emotions, helped children develop more appropriate social skills and taught practical behavior strategies for the classroom and home. Families enrolled in the class (in addition to taking stimulant medication) reported significantly fewer ADHD symptoms in their children in comparison to the families who only used stimulant medication. Similar results were identified by Gerdes et al. (2012), who also found behavioral training to play a significant role in decreasing parent stress. Therefore, such interventions have benefits that extend beyond just the affected child, and can improve quality of life for the entire family.

Parent Psychoeducation and Training (PPT).

Parents and primary caregivers play an integral role in the treatment of their child's ADHD (AAP, 2011). Unlike other treatment options, PPT programs specifically address parental involvement via parent education and training and place the responsibility on the parents to modify their child's behavior by learning and implementing new parenting strategies (Gerdes, et al., 2012). Such involvement is important as a child functions within an environmental system, and the familial unit may need to adjust in order to reduce negative symptomology, and provide an environment which rewards appropriate behavior (Foley, 2010; Kendall, Leo, Perrin, & Hatton, 2005). Indeed, fostering the needed change for a child to address ADHD symptoms, takes parental involvement, input, and training.

As parent education and training takes a high level of parental involvement, research has examined the effectiveness of such programs to ensure it is worth the "cost." The term psychoeducation itself is often used in different contexts. According to current literature in psychotherapy, "psychoeducation has been defined as a systematic, and didactic approach,

adequate for informing patients and their relatives about the [diagnosis] and its treatment, facilitating both understanding and personal handling of the [diagnosis]" (Bäumi, Froböse, Kraemer, Rentrop, & Pitschel-Walz, 2006, p. 3). In addition, Bäumi et al. stated that psychoeducational therapy is only defined as such when it is carried out by a therapist, in individual or group settings, with sessions lasting 60-90 minutes. To test the efficacy of intensive psychoeducation in the treatment of childhood ADHD, Ferrin (2011) conducted a blind randomized control trial. Families were placed into either a psychoeducational program with weekly group meetings lasting 90 minutes, or in a "control" condition. After program completion, and upon 12-month follow-up, families who completed psychoeducation had children who displayed significant reductions in the child's global ADHD index (partial $\eta^2 = 0.096$) and in cognitive/attentive abilities (partial $\eta^2 = 0.102$). In addition, pro-social behaviors had significantly increased at the 12-month follow-up ($\eta^2 = 0.047$).

Similar results were found in a comprehensive literature review by Montoya, Colom, and Ferrin (2011), in which they reviewed articles published from 1980 to 2010. Of the seven identified studies that qualified as psychoeducational treatments for children with ADHD, psychoeducation significantly contributed to the reduction of ADHD symptoms. They also noted amassing evidence that teacher-psychoeducation likely plays a contributory role. Salmon and Kirby (2009) advocated for the multi-agency and multidisciplinary approach to the diagnosis and management of neurodevelopmental disorders, including ADHD. This is particularly the case if the child is receiving special education, or has been identified as having specific learning needs above and beyond the typical classroom child (DfES, 2004). Teachers have the interesting opportunity of viewing the child in "real time" against other children his or her age, and therefore can make comparisons that parents and clinicians are often not able to make. Given

these factors, teachers have the ability to make treatment more holistic by addressing the child's educational experience within the context of his or her symptoms and functioning.

Multimodal Interventions.

The AAP (2011) recognizes multimodal approaches for ADHD treatment as the preferred and most efficacious option for children. Recent epigenetic and biopsychosocial models profoundly influenced not only AAP, but also the field's conceptualization of the diagnosis of ADHD across genders and ethnicities. While once viewed as a purely behavioral issue, these new models recognize the interplay between environmental variables and genetically determined biological systems (Vance et al., 2011). Given this, the AAP, and other leading practitioners in ADHD research and treatment, view multimodal approaches that combine medicine, behavioral therapy, and psychoeducation (often as a part of behavior therapy) most reflective of the epigenetic/biopsychosocial model. Therefore, given such considerations, many researchers and practitioners advocate for an additive approach to treatment as the most ethical option.

The theory that multimodal approaches offer the best chance of symptom alleviation for ADHD is robust in the literature. These approaches include the combination of psychostimulant medication and conventional behavioral interventions. Components of parent skills training and psychoeducation, in addition to classroom management strategies and learning assistance programs (Leggett & Hotham, 2011) make these tiered treatments even more vigorous. According to the NIH's sponsored Multimodal Treatment of ADHD (MTA) study (MTA Cooperative Group, 1999), multimodal treatment for ADHD was superior in reducing symptoms in comparison to control or uni-dimensional approaches. The MTA was a multisite study designed to evaluate the leading treatments for ADHD, including behavior therapy, medications, and the combination of the two. The study included nearly 600 children, ages seven to nine, who

were randomly assigned to one of four treatment modes: medication only treatment, which was comprised of monthly 30-minute pharmacotherapy management sessions addressing dosage adjustments, and general feedback and guidance to parents; behavioral therapy only, in which children completed individual and family sessions across eight weeks aimed at behavior change (school behavior was monitored based on teacher report cards which were sent home with the child each day); a combination of medication and behavioral therapy as described above; or routine community care (control group). Children who completed the behavioral therapy in combination with medication experienced significantly more gains ($p < .05$) in comparison to the other groups, as did the medication-management group ($p < .05$). However, unlike the medication management group, gains were evidenced 14 months after the study's commencement. In other areas of functioning (e.g., anxiety symptoms, academic performance, parent-child relations, social skills), combined treatment was consistently superior to routine community care, whereas medication alone or behavioral treatment alone, were not. The children in the combined treatment group also ended up taking lower doses of medication than the children in the medication-alone group. These findings were consistent across all six research sites, despite substantial differences among sites and in the children's socio-demographic characteristics. Therefore, the study's overall results can apply to a wide range of children and families in need of treatment services.

While multimodal approaches remain the standard of care in treating children with ADHD, the vast majority of children who present with ADHD only receive one facet of invention, with medication management occurring most often (Leggett & Hotham, 2011). For example, Concannon and Tang (2005) found that 82% of children had tried medication, 42% had tried behavioral interventions, and even fewer had tried both methods concurrently. It is

important to promote parental contributions in helping children with ADHD gain optimal treatment outcome via multimodal approaches. Thus, the next set of issues to address are possible variables that may influence parents' openness toward different treatments, and their motivation to become involved, which is a necessary component of multimodal approaches.

Openness toward Treatment and Parental Motivation for Involvement

Parents' openness to and motivation to be engaged in treatment for their child's ADHD is an important consideration when establishing a treatment plan. These variables not only affect the course and type of treatment(s) chosen, but also influence treatment compliance, symptom reduction, and the continuation of treatment (Tarnowski et al., 1992). While there are several treatment options available, all of which have shown at least some level of effectiveness, effective treatments may not necessarily be regarded as a "good option" by parents (i.e., intensive bi-weekly behavioral therapy). Conversely, treatments which parents may prefer or be more open to try, may not necessarily be particularly effective (e.g., talk-therapy for ADHD). Therefore, considering how open a parent is toward a treatment, in addition to how "good" they view a treatment, are important considerations. After all, parents are the gatekeepers for their children's care, and openness toward a given treatment strongly influences which treatment will ultimately be chosen (Reimers, Wacker, & Koeppl, 1987).

In addition, parents' general involvement in the lives of their children has an immense impact on children's health and functioning. Research has shown that parents who are more motivated to be involved in the day-to-day lives of their children, tend to have children who perform better in school (Jeynes, 2005), have less behavioral problems, and are more autonomous (McCormick, Cappella, O'Connor, & McClowry, 2014). When a child presents for mental health treatment like ADHD, a parent's motivation to become involved has been shown

to positively impact the child's functioning and treatment outcome. In particular, there is strong research evidence that treatment options requiring more parent involvement are more effective over medication management alone (MTA, 1999).

Part of the benefit of involved parents, particularly mothers, is increased continuity of what is learned and practiced in therapy, and what is practiced in the home (AAP, 2011). Parents who are involved are also able to communicate more effectively with schools to ensure that academic plans and educational environments are conducive to the child's presentation and needs (Barkley, 2006). Encouraging parents to be involved is directly tied to academic outcomes as well, an especially important finding as children with ADHD are more likely to struggle academically than their peers (APA, 2013). Rogers, Wiener, Marton, and Tannock (2009) evaluated parents of 101 children aged eight to 12, and found parents of children with ADHD reported lower self-efficacy regarding their ability to help their children academically, felt less welcome and supported by their children's schools and teachers, and perceived less time and energy for involvement in their children's academic needs. Therefore, including strategies to help parents address such issues would likely prove beneficial for not only the parent, but the child as well.

Given the strong connection between parent involvement and treatment outcome (Leggett & Hotham, 2011), understanding variables which may enhance or inhibit motivation for involvement and openness to different treatments is important (Kazdin, 1981). The following sections explore four variables that may impact parent involvement and openness. Theoretical models supporting their proposed connection is also discussed.

Variables in Parental Motivation for Involvement and Treatment Openness. The current study will seek to examine four variables based upon theoretical models demonstrating

their influence on a parent's ability to parent effectively. Given this study's focus on mothers, the application of these findings will be specifically applied to mothers' experiences. These variables include parental stress, parental self-efficacy, parent-child attachment, and child's behavioral patterns as demonstrated by symptom severity. Conceptually seeing these variables as having predictive roles in parent openness to and motivation in to be involved in treatment is supported by the following theories: Lazarus and Folkman's (1984) theory of stress; Bandura's theory of self-efficacy (1977); Bowlby's attachment theory (1958) and Barkley's theory of self-regulation (1997).

Parental Stress. Stress plays an important role in individuals' everyday behaviors, including their ability to effectively parent and be involved with their children. Lazarus & Folkman (1984) define psychological stress as "a relationship with the environment that the person appraises as significant for his or her well-being and in which the demands tax or exceed available coping resources" (p. 63). Parental demands can be challenging to navigate, especially when a child has a mental health condition. As a general rule, parents of ADHD children encounter more parenting difficulties and have fewer rewards than do parents who are not parenting ADHD children (Fischer, 1990). Thus, it is possible that parents of ADHD children often see their family life as unrewarding and feel overwhelmed with parenting and family life in general (Baldwin, Brown, & Milan, 1995). In fact, it is well accepted that when a parent has a child with ADHD, there is a strong potential for parents to experience increased stress (Theule, Wiener, and Rogers, 2011), which may influence their ability to become involved in their child's treatment. In addition, a child's ADHD symptoms seem to cause mothers more stress than fathers, according to one study. Podolski and Nigg (2001) examined mothers and fathers of 66 children aged seven to 11 with ADHD in order to assess parenting stress and coping. Results

found that mothers reported high stress directly in relation to child's inattentive and oppositional/conduct problems, while paternal stress was only associated with oppositional and aggressive behaviors. Overall, ADHD symptoms appeared to more negatively impact maternal stress than paternal stress levels. Narkunam, Hashim, Sachdev, Pillai, and Guan (2012) found similar findings in that parents of children with ADHD reported significantly more stress than parents of children without ADHD. In addition, they found that parents of children with ADHD older than 12 years of age were six times more stressed than parents with children younger than 12 years of age, and mothers were more stressed than fathers. Overall, both mothers and fathers, when asked about their stressors, indicated that having a child with ADHD was their biggest worry.

Taken together, research to date seems to suggest having a child with ADHD puts an additional stressor on a parent, above and beyond typical parenting demands. While this stress influences the whole household, mothers seem to report more stress parenting a child with ADHD than fathers. Given such findings, it would appear that addressing parents' stress level should go hand in hand with addressing children's needs. After all, when a parent is spending more time managing his or her own stress level, they likely have less time to dedicate to the wellbeing of the child.

Parental Self-Efficacy. Bandura's self-efficacy theory (1977; 1986) postulates that individuals' appraisal of their ability to perform a behavior strongly influences their likelihood of exercising that behavior. In the case of children's mental health problems, parents may also wonder whether they are able to make any significant difference in the outcome of their child's treatment. Parents' assessment of their own ability to navigate the system, be able influence their child's behavior, and their belief that they can have a positive influence in therapy and

beyond, are likely to affect their decision to participate. According to Heflinger and Bickman (1996), self-efficacy is also a component of empowerment and competence (Major, Vanderslice, & McFarlin, 1984), which is the process by which individuals implement their choices and decisions in an effort to change their life situations. Heflinger and Bickman hypothesized that competent parents will become more involved in their children's mental health treatment. It is important to note that parental self-efficacy and competence in one area does not necessarily translate to feelings of efficacy and competence in other areas of life. The current study looks at self-efficacy specifically through the lens of parent roles regarding ADHD, and this is how it is discussed in the remainder of the document.

While feelings of self-efficacy are important for parenthood in general, research has shown that it is particularly important when children have mental health conditions such as ADHD (AAP, 2011). Another study examined parental participation in child learning, and observed less participation and self-efficacy in parents of children with ADHD compared to parents of children without ADHD (Rogers et al., 2009). As a nice practical application of the importance of self-efficacy for parents of ADHD children, Kohut and Andrews (2004) reviewed 10 studies using parent training specifically aimed at increasing parent-self efficacy, in the treatment of their child's ADHD symptoms. Across all studies, the parent training programs seemed to be able to increase parental confidence and efficacy in their ability to manage their child and his or her symptoms, in addition to increasing self-esteem in general.

In addition, low maternal self-efficacy also has direct negative associations with child behavior and functioning. Mothers with low self-efficacy are significantly more likely to have children that display significant conduct problems (Sanders & Wooley, 2005). In addition, in a study that assessed 2,509 child-parent dyads, results found that parents of children with ADHD

rated their overall parental efficacy significantly lower than parents of children without ADHD (Primack et al., 2012). Conversely, mothers with higher self-efficacy more commonly have children with better social adjustment, less conduct problems, and better mood regulation abilities (Coleman & Trent, 2002). Overall, self-efficacy, across parenting situations, seems to have significant implications for the parents, their children, and the quality of family functioning in general.

Attachment. Bowlby's (1958) attachment theory is an evolutionary-ethological perspective which describes the basis of an infant's tie with his or her mother. The theory posits attachment as a foundational biological response between a mother and her infant, resulting in the attachment-behavioral system. Within this system, the mother serves as the protector, offering safety and assurance particularly in times of danger and stress. As a child is learning about his or her world and attempting to distinguish what is safe versus what is dangerous, the "distress system" will often turn on. The distance and behavior of the mother toward the child are contributing factors in the child's appraisal in whether or not the mother is needed for protection against an actual threat. Once the child has correctly identified the threat to have past or never existed, the "distress system" is deactivated, and the mother becomes the child's secure base, allowing other systems (e.g., the exploratory system) to engage. When these systems function appropriately, the child is said to demonstrate secure attachment, allowing continued healthy exploration, development, and growth.

Indeed, the ability to assess mother-child security is of great importance, as security in the attachment relationship is the foundation for later adaptation. While attachment is often considered important in infancy, Bowlby (1982) noted that a child's confidence in the availability of a caregiver is also important throughout childhood and adolescence. Easterbrooks

and Goldberg (1990) conducted a longitudinal study examining the normal development of attachment by following 58 children from toddlerhood to kindergarten. Attachment security was assessed in the toddler period, and a follow-up study was conducted in kindergarten. Results suggested that moderation of impulses and emotions in kindergarten was associated with secure attachment in toddlerhood. They concluded that while secure attachment fosters adaptation, insecure attachment leaves the child at risk for future maladaptation. Furthermore, Bretherton's (1990) literature review of infant and toddler attachment, as measured by the stories told by the child, found that when a child's signals to the caregiver go unanswered or are interpreted incorrectly, the child is left in a state of confusion and fear. This disrupts the child's internal working model of safety and security, in particular, who is safe, and future interactions with the environment.

The notion of attachment is often a consideration when assessing and treating children with ADHD. In particular, children who are diagnosed with ADHD, often share similar characteristics to children who do not present with secure attachment. In a literature review by Barkley (1998), he summarized how children with ADHD demonstrate relationship difficulties within and beyond the mother-child system, including greater emotional reactivity in social situations, greater negative affect in peer interactions, and greater negative verbal interactions with mothers. The emotional and behavioral patterns described by Barkley were similar to those of children demonstrating insecure attachment in Easterbrooks and Goldberg's study (1990). The importance of the attachment relationship is highlighted by some, who see the quality of the mother-child attachment as the underlying framework for ADHD conceptualization and treatment (Erdman, 1998). While ADHD is currently viewed as a neurodevelopmental disorder, based in a biopsychosocial framework, we do clearly see the strong impact of the quality of the

mother child attachment, particularly for children with ADHD. Overall, the attachment between a parent and their child seems to influence the child's emotional, behavioral, and overall physical and psychological development.

Child-ADHD Symptom Severity. According to Barkley (1998), the fundamental deficit in children with ADHD rests in self-control, which is often perceived by adults via negative behavior patterns. Specifically, Barkley argues that during the course of development, a child's behavioral control gradually shifts from being mandated by external forces to using internal rules and standards. The term self-control refers to the ability to control one's own behavior following an internal rule-set. According to Barkley, children with ADHD have failed to develop the capacity for "self-control" or what he called "self-regulation," a resultant he describes as based in biology, not parenting. Moreover, the lack of self-regulation abilities for coping with novelty and stress as a child, predicts difficulties coping with psychobiological stressors at later stages in the life cycle (Schore, 2001). It becomes a vicious cycle, in which the lack of appropriate coping abilities increases the chance for further developmental interruptions in the ability to self-regulate.

Barkley (1998) also points out that deficits in self-regulation result in the behavioral features of ADHD, namely, impulsive and hyperactive behaviors. Though Barkley views inattentive features as less problematic, he attributed inattention to a deficit in self-regulation or self-control as well. Thus ADHD symptoms are often tied with the level of self-regulation abilities, evidenced as hyperactivity, impulsiveness, and inattention. These behaviors often have the potential to become increasingly problematic as a child enters adolescence. Research on 50 adolescents with ADHD has shown that between 30% and 80% of children continue to show symptoms in adolescence. Overall, despite the fact that many children's symptoms may lessen

as they get older, ADHD remains a condition that affects many individuals across the lifespan (CHADD, 2016). Of children that do continue to show symptoms into adolescence and adulthood, 25% to 45% display oppositional behavior, antisocial behavior, or conduct problems. In addition, adolescents who demonstrate marked hyperactive and impulsive behavioral patterns are more likely to be in car accidents (with them being at fault more often) and have a higher incidence of traffic citations (Barkley, 1998).

The link between symptom severity and parental approaches to treatment has been mixed. Previous studies have found that the higher the severity of behavior problems, the more parents are open to (accepting of) proposed treatments (Fretz & Kelley, 1986; Kazdin, 1980; Reimers et al., 1991). In particular, Bennett, Power, Rostain, and Carr (1996) found that when parents rated the severity of their own child's externalizing behavior problems, rather than a child described in a vignette, they were more open to counseling and rated counseling as more acceptable. In addition, Gage and Wilson (2000) found that parents of children with ADHD demonstrated higher openness toward medication treatment than did parents of children without ADHD, but did not address symptom severity in relation to treatment acceptance. Bridging openness toward treatment to parent motivation to be involved, Thiruchelvem, Charach, and Schachar (2001) examined 71 children with ADHD who were prescribed methylphenidate to examine how symptoms affected parental motivation for treatment via treatment adherence. Results showed that the presence of conduct issues, learning difficulties, mood problems, and poor family functioning were all moderators of adherence. In other words, children who demonstrated more significant symptoms had family members who were less motivated to maintain involvement in the proposed treatment long-term. Given such discrepancies, more

research is needed to understand the relationship between behavioral patterns and symptom severity, and their influence on parent's approach toward treatment.

The Present Study

The aim of the present study was to investigate the predicative roles of stress, self-efficacy, attachment, and the severity of a child's ADHD symptoms, in mothers' motivation to become involved in their child's ADHD treatment and their openness toward different ADHD treatment modalities. A descriptive correlational design was employed and an online survey method used. Participation was solicited from mothers who identified as having a child aged six to 12 year of age who demonstrated at least some symptoms of inattention/focus issues and/or hyperactivity/impulsivity, often associated with ADHD (with or without formal diagnosis). The decision to study mothers only was made with reference to research that shows large discrepancies between mothers and fathers in their report of child symptoms (Langberg et al., 2010), and that mothers are more likely to do more of the daily caretaking of their child. Studying only mothers also help avoid clustering due to both parents completing the study. The following research questions were addressed:

Research Question One: Do stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity, predict mothers' level of openness towards behavioral-only treatment, medication-only treatment, and multimodal treatment?

Research Question Two: Do stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity predict mothers' acceptability rating of multimodal treatment?

Research Question Three: Do stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity predict a mother's level of motivation to be involved in her child's treatment?

Research Question Four: Do the predictor variables (stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity) distinguish between mothers who select behavioral-only, medication-only, or multimodal as the preferred ADHD treatment for their children?

Chapter III

Methods

Participants

Participants of the current study were mothers who are the primary caretakers of the child in question (as indicated by endorsement of the statement "are you the parent of a child who resides in your household?"). All mothers, regardless of their child's diagnostic or treatment history, were given the option to participate if their child demonstrated at least some difficulties with attention and focus and/or hyperactivity/impulsivity. The child in question must have been between the age of six and 12 at the time of study completion (childhood to early adolescence), reflective of the age group for which ADHD symptoms usually emerge and are labeled as problematic (APA, 2013). Given that research has found large discrepancies in symptom report between mothers and fathers in general (Langberg et al., 2010), and that mothers are more likely to do more of the daily caretaking of their child, this study only surveyed mothers in order to control for these potential factors as a confound. There was no other exclusionary criterion for participation in the study.

Data for 37 individuals were excluded because they failed attention checks while participating, or completed the survey in less time than was deemed necessary for a valid participation. These individuals were provided an individualized explanation for why they were not reimbursed. Given that in MTurk, the desired sample size is outlined and paid for prior to study completion, additional participants were recruited until the desired sample size was obtained. Therefore, after study recruitment was concluded, the total study sample consisted of 200 participants.

Participant age ranged from 18 to 58 (M = 33.54; SD = 6.62). Race/ethnicity was reported as 58% (n = 116) Caucasian, 26.52% (n = 53) Asian/Pacific Islander, 3.5% (n = 7) Hispanic/Latino, 7% (n = 14) African American, 2.5% (n = 5) Native American, and 2.5% (n = 5) identified as multiethnic. Of the participants, 12.5% identified as single (n = 25), 7.5% as divorced (n = 15), 66% as married (n = 132), 3% as separated (n = 6), and 11% identified as being in a committed, non-married relationship (n = 22). Education levels varied; 17% (n = 34) received a high school diploma, 20.5% (n = 41) had an associate's or technical degree, 45% (n = 90) had a bachelor's degree, 16.5% (n = 33) had a master's degree, and 0.5% (n = 1) had a doctoral degree (i.e., Ph.D. or M.D.).

Child-age ranged from six to 12 (M = 8.12; SD = 1.80). Of the children, 58% were boys (n = 116) and 42% (n = 84) were girls. A current ADHD diagnosis was held by 90% (n = 180) of children. Of the children diagnosed with ADHD, the age when diagnosed varied; 32.5% (n = 65) were diagnosed before the age of five; 28.5% (n = 57) at age six; 14.5% (n = 29) at age seven; 8.5% (n = 17) at age eight; 4% (n = 8) at age nine; 1.5% (n = 3) at age 10; and 0.5% (n = 1) at age 11.

Measures

Demographic Questionnaire. The researcher constructed a brief demographics questionnaire in order to obtain information about the informant (mother), the informant's family, and the child about whom the mother was responding.

Demographic information obtained regarding the mother included: age; ethnicity; marital status; highest level of education, and sexual orientation. Information about the nuclear family included family's yearly gross income. Information obtained about the mother's child included: the diagnosis/diagnoses the child holds (ADHD and other); the child's gender; child's race;

child's grade in school; age of child when diagnosed with ADHD; the individual who diagnosed the child (i.e., family doctor, psychiatrist, psychologist); and any treatment(s) the child had received specifically for his or her ADHD diagnosis (see Appendix C).

Parental Stress. The Parental Stress Scale (PSS; Berry & Jones, 1995) is an 18-item self-report scale designed to assess levels of parental stress. The measure was designed as a shorter alternative to the Parental Stress Index (PSI), and was created to reflect both positive and negative aspects of parenting related to overall parenting stress. Specifically, items on the scale are designed to reflect both positive (e.g. emotional benefits, personal development) and negative (e.g. demands on resources, restrictions) themes of parenting. All items are measured on a 5-point Likert scale, from one (strongly disagree) to five (strongly agree). Higher overall scores are reflective of higher levels of parental stress (See Appendix D).

The PSS was validated on a group of 1,276 parents within the United States. The scale demonstrated satisfactory levels of internal reliability (.83), and test-retest reliability (.81). The scale demonstrated satisfactory convergent validity with various measures of stress (such as the PSI and the Perceived Stress Scale), including perceived stress and work/family stress. Discriminant analyses demonstrated the ability of the scale to discriminate between parents of typically developing children and parents of children with both developmental and/or behavioral problems (Berry & Jones, 1995).

Self-Efficacy. The Parenting Sense of Competence Scale (PSOC; Gibaud-Wallston & Wandersman, 1978) is a 16-item self-report measure, which examines parents' sense of self-efficacy and satisfaction with their parenting. The measure examines these constructs within two domains: feelings of satisfaction (8-items) and efficacy in the parenting role (8-items). All items are measured on a 6-point Likert scale from one (strongly agree) to six (strongly disagree). For

all items within the measure, higher scores are indicative of higher levels of self-efficacy/esteem. Total scores range from 16 to 96, with higher scores indicative of higher levels of parental competence and self-efficacy (See Appendix E).

Internal consistency assessed via Cronbach's alpha was found to be .79 for the total PSOC score. Test-retest reliability ranged between .76 and .82, and a significant inverse relationship between the PSOC and the CBCL (Achenbach, 1991) has been reported (Johnston, & Mash, 1989). For the purpose of the current study, only the self-efficacy subscale will be calculated and used for analysis to reflect the construct of parental self-efficacy.

Attachment. The Parent-Child Attachment Survey (PCAS; Thornberry, Lizotte, Krohn, & Farnworth, 1991) is an 11-item self-report measure, which examines the general attachment (the degree of warmth and the lack of parent-child hostility) between a caregiver and child. All items load onto one score, which measures the quality of relationship and positive attachment between the parent/caregiver and the child. All 11 items are measured on a 4-point Likert scale from one (never) to four (often). Five of the 11 items are reversed scored. Scores can range from 11 to 44, with higher scores indicating a closer, more secure attachment between the child and parent/caregiver (See Appendix F).

The PCAS was developed as part of the Rochester Youth Study, which sought to examine the effects on parent-child attachment and school commitment on child and youth delinquency (Thornberry et al., 1991). The study used a seven-wave panel design, administering this measure, in addition to others, to a total of 987 youth. Thornberry used data from the first three waves of administrations (867 youth). Of the three waves, factor analysis showed that all items loaded onto a single construct (attachment), which was stable across all administrations. Cronbach's Alpha ranged from 0.82 to 0.87, and internal consistency was measured at 0.81. The

measure is currently included in the Center for Disease Control and Prevention's (CDC) compendium of Assessment Tools, Second Edition (Dahlberg, Toal, Swahn, & Behrens, 2005). The compendium provides practitioners and researchers with empirically validated and reliable measures for youth prone to behavioral problems. The purpose of the compendium is to increase process and outcome research with these measures, and to continue adding to evidence of their validity within and among diverse populations.

Severity of Child's ADHD Symptoms. The Conners' Parent Rating Scale – Revised (CPRS-R; Conners, Sitarenious, Parker, & Epstein, 1998) was used to assess overall behavioral trends of the child, with particular attention to the severity of the child's ADHD symptoms. The scale is a self-report measure used to assess parental perceptions of their child's ADHD symptoms. The CPRS-R contains 27-items rated on a 4-point Likert scale from zero (not at all) to three (very much). The scale yields four mutually exclusive scales defined by factor analysis. The first is the Oppositional Defiant Scale. Parents who score their child high on this scale, tend to have children who break rules, have problems with authority, and are easily annoyed. The next scale is the Cognitive Problems/Inattention Scale. Parents who score their child high on this scale, tend to have children who learn slowly, have organizational problems, difficulty completing tasks, and difficultly concentrating on problems. The third scale is the Hyperactivity Scale. Parents who score their child high on this scale, tend to have children who have difficulty sitting still, cannot stay on tasks, and are restless and impulsive. The last scale is the ADHD Index, and is the main scale of interest for the current study. Parents who score their child high on this scale, tend to have children who are more at risk for having ADHD, with higher scores corresponding to higher symptom severity (See Appendix G).

The items from the CPRS-R contain the most clinically useful factor-derived subscales of the longer form, the CPRS-R:L. The scale was developed using a sample of 2,200 children aged three to 17. Reliability and internal consistency of the CPRS-R was established from the same sample of children. Factor structure was tested in a replication sample (n = 1,100) with confirmatory factor analysis resulting in the four aforementioned scales. Six-week test–retest correlations were between .62 and .85, and Cronbach's alphas ranged from .88 to .96 across all scales (Conners et al., 1998).

Motivation to be involved in Treatment. The Parental Motivation Inventory (PMI; Nock & Photos, 2006) assesses parental motivation to be involved in their child's ADHD treatment. The measure was designed to provide an indication of the overall level of motivation parents have to be involved in their child's mental health treatment. The PMI is a 25-item self-report measure, with items rated on a 5-point Likert scale, ranging from one (strongly disagree) to five (strongly agree). The sum of all items results in a single motivation score ranging from 25 to 125, with higher scores indicating higher levels of treatment motivation. In addition, the measure was also designed allow for differential assessment of three components of treatment motivation, including: parent desire for child behavior change (scores range from seven to 35), readiness to change parenting behavior (scores range from seven to 35), and interest in being involved in treatment (scores range from 11 to 55) (Nock & Photos, 2006) (See Appendix H). Overall, the measure allows for a multi-tiered level assessment of treatment motivation and parent willingness for involvement, by examining the aforementioned subscales in relation to the total scale score.

The PMI has demonstrated strong internal consistency (Cronbach's α = .96) and test-retest reliability, as measured from the administration of the measure from session one to five

(Nock & Photos, 2006). Internal consistency was also found to be high (Cronbach's α = .89) in a study evaluating parental involvement in multi-systematic therapy for delinquent youth (Johannes, 2010). Factor analysis performed in both studies supported the unidimensional construct of parent motivation, in addition to the three separate subscales (desire for child change, readiness to change parenting behavior, and interest in being involved in treatment). For the current study, all subscales and the total-scale scores will be used in analysis.

Parental Acceptability Rating of Multimodal Treatment. Parents' ratings of how acceptable multimodal treatment is for their child's ADHD (i.e., how good they view this treatment to be for their child) will be assessed using the Treatment Acceptability Questionnaire (TAQ; Krain et al., 2005) (See Appendix D). The Treatment Acceptability Questionnaire (TAQ) is designed to assess parents' openness/acceptability toward different treatment methods for their child's psychological symptoms. The current version of the TAQ was adopted from Krain et al., (2005) who modified the original measure, titled the Abbreviated Acceptability Rating Profile (AARP; Tarnowski et al., 1992). The AARP was designed to assess parental acceptability of treatment based off a case vignette. The TAQ modified the wording in order to assess parents' ratings of treatment acceptability for their *own child*. For the purpose of the current study, the measure has been modified to specifically address how acceptable a parent rates a multimodal approach (via a description of the treatment option in the directions). The TAQ contains nine items rated on a 6-point Likert scale, with scores ranging from eight to 54, with higher scores indicating greater levels of acceptability toward the indicated treatment (See Appendix I).

Alpha coefficients for the TAQ are very high, ranging from 0.93 to 0.97 (Krain et al., 2005; Tarnowski et al., 1992). Specifically, the alpha coefficients for TAQ ratings of Medication Acceptability and Behavior Therapy Acceptability were very high (α = .97 and α = .93,

respectively) and were consistent with that found in the original publication of the AARP (α = .97; Tarnowski et al., 1992). Construct validity was assessed by comparing TAQ scores to responses on a forced-choice question regarding parents' comfort with treatment within behavioral, medication management, or no treatment options. Results from independent sample *t*-tests found that results from the forced questions were consistent with parents' scores on the TAQ.

Parental Openness toward Medication, Behavioral, and Multimodal treatments. In order to measure openness toward medication-only treatment, behavior therapy-only treatment, and a multimodal approach, the participant will answer three Likert-type questions, developed by the researchers for the current study. These questions will require the participant to rate their level of openness toward behavioral therapy (for their child), medication treatment, and a multimodal approach (combining medication and behavior therapy) from zero (absolutely not open) to 100 (absolutely open). The participant will put their mouse on a linear line and stop their cursor relative to their level of openness. As acceptance to medication and behavioral therapy were secondary interests of the current study, including these scenarios within the TAQ was hypothesized to potentially confound participants' responses to the TAQ, if required to complete the TAQ three times (one for each treatment option) (See Appendix J).

A 101-point Likert scale was chosen for these three questions based on the results of Preston and Colman's (1999) study. This study used self-administered questionnaires given to 149 respondents, who rated their experiences at a recent store or restaurant. Responses were rated on scales that differed only in the number of response categories. The goal of the study was to determine the optimal number of response categories for a rating scale. Their study found that the nine and 101-point scales yielded the highest reliability (α = 0.94 and .90 respectively),

the strongest criterion validity (0.89 for both scales), and interterile discriminating power (.96 for both scales). In addition, participants preferred scales with more points. Therefore, based upon the sum of these findings, a 101-point scale was chosen for the current study.

Parental Preference toward Medication, Behavioral, and Multimodal treatments. In order to measure preference towards different treatments, participants will be asked to rank order which treatment they would prefer for their child. Participants will be asked to rank their preference for medication treatment-only, behavioral treatment-only, and multimodal treatment (behavioral and medication), from one (most preferred) to three (least preferred). Participants will be given a description of each treatment option and asked to consider this description while making their ranking decisions (See Appendix K).

Procedure

Participants were recruited through Amazon's Mechanical-Turk (MTurk) system (See Appendix B). MTurk is a data collection database, which enables researchers to access a wide range of participants in order to conduct high-quality research. Research regarding the use of MTurk for behavioral studies has shown that MTurk participants are truthful and consistent when providing demographic information (Rand, 2011), are as reliable as non-MTurk samples, and are more representative of the general population than traditional student samples (Buhrmester, Kwand, & Gosling, 2011). To ensure that MTurk workers who participate in the current study provided consistent and accurate data (i.e., maintained focus and attention for the duration of the study), attention-checks were entered within the current study. According to Goodman, Cryder, and Cheema (2013), checks such as these, add an extra layer of protection to the MTurk researcher, not only in obtaining high quality data, but also to assist in ensuring that payment to MTurk workers are made to those that provided honest and accurate information.

Though attention checks were utilized in the current study, research has consistently shown that MTurk workers attend appropriately, and even pass attention checks at a higher rate than college samples. For example, in three online studies, Hauser and Schwartz had participants from MTurk and collegiate populations participate in a task that included a measure of attentiveness to instructions (an instructional manipulation check (IMC)). In all studies, MTurk workers were more attentive to the instructions than were college students, even on novel IMCs (Studies 2 and 3), and more consistently noticed small text manipulations.

In the MTurk system, participants register as "workers," and provide their payment information to Amazon. Researchers provide study announcements, called "Hits" for MTurk workers to complete. Completion of a Hit provides the "worker" with a small monetary payment for their participation. Monetary reimbursement for participation usually ranges from $0.25 cents to $2.00 per study, and is usually reflective of the time required to complete a Hit. Requesters are encouraged to make their monetary reimbursement fair and equitable for a participant's time based upon broad standards set for minimum wage. All consenting individuals received $3.50 for participating in the current study, based upon hypothesized time to complete the current set of questionnaires (20 to 30 minutes).

All data collected through MTurk are anonymous. To participate in the current study, participants could read the study description as listed in MTurk. This description outlined the participant requirements (i.e., age and status of mother), which the participant needed to meet to participate. Once a worker had read the statement (or the Hit), they were directed to open the Hit and click on the Qualtrics link within. Clicking on the link opened a new browser, which separated the Mturk worker's information from the study data to guarantee anonymity. Once in Qualtrics, they were given the chance to review an information statement, including reasons they

may not be reimbursed (i.e., not providing valid data), and indicated consent by choosing to continue on to the current study survey (See Appendix A).

Once in the study, the worker needed to pass attention checks (to verify validity of data) to continue through to the end of the survey. For participants who did not pass a given attention-check, skip-logic was built into the survey which brought the participant to a page describing their failure to pass an attention check, that they were being exited from the survey, and would not be reimbursed for their time. Participants had to complete each question in order to continue through the survey. Once a participant had answered all questions and passed attention-checks, they were brought to a final page, which used a random-numbers-generator-type algorithm to provide a unique MTurk identification code, which is unassociated with their MTurk account. The Mturk worker copied this code and entered it back in MTurk, in order to request reimbursement through the MTurk system. The researcher had three days to review an MTurk worker's de-identified data and approve pay-out, at which point the Amazon system would automatically reimburse the participant. Data from completed surveys were reviewed individually. If participants completed the study but did not meet study requirements (i.e., indicated they were male), and/or completed the survey in less time than was deemed necessary for valid data, and/or clear answer-option patterns were observed that likely indicated an invalid data set (e.g. answered "strongly agree" to all answer options), they were not reimbursed. Individualized messages were sent explaining why they were not reimbursed. Only participants who submitted complete and appropriate data were reimbursed $3.50.

Data Analysis

Initial analyses and Demographic Variables. Descriptive statistics, including means and standard deviations, were calculated for all discrete categorical variables including mother-age, child-age, and total scores and/or subscale scores on all measures. Frequencies were calculated for participant-race, child-race, marital status, household income, child-gender, child-grade, mother's education, mother's sexual orientation, child-ADHD diagnosis (yes or no), age child was diagnosed with ADHD (if applicable), who diagnosed the child with ADHD (if applicable), other mental health diagnosis the child holds (yes or no), and any treatments the child has received specifically for ADHD symptoms (if applicable).

Preliminary Analyses. Prior to the main analyses, preliminary analyses were conducted to ensure statistical assumptions necessary for the proposed main analyses. Data cleaning was conducted to ensure all participants met the participation requirements and that the data was valid. Furthermore, an examination to test the assumptions of multiple regression, including the reliability and normal distribution of all the major variables, the linear relationship between variables, and a test for homoscedasticity, was conducted.

Hierarchical Multiple Regressions. To address the first research question, regarding if stress (PSS), self-efficacy (PSOC), mother-child attachment (PCAS), and child-ADHD symptom severity (CPRS) predict mothers' level of openness towards three different treatment options, three hierarchical multiple regressions were performed. To address the second research question, regarding if PSS, PSOC, PCAS, and CPRS predict mothers' acceptability rating of multimodal treatment (TAQ), another hierarchical multiple regression was calculated.

To address the third research question, if PSS, PSOC, PCAS, and CPRS predict a mother's level of motivation to be involved in her child's treatment (PMI-TTL), a hierarchical

multiple regression was performed. As the PMI also includes three subscales (which sum to provide the total score), three follow-up hierarchical regressions were performed with each subscale score (PMI-CH, PMI-PA, and PMI-IN) as a criterion variable. The subscales were of the main interest for the current study given their specificity, and are the focus of interpretation. The total score is included in analyses to reflect the construction of the measure and to evaluate general patterns across scores.

Discriminant Analysis and Classification. To address the fourth research question regarding if the predictor variables (PSS, PSOC, PCAS, and CPRS) accuracy distinguish between mothers who select behavioral-only, medication-only, or multimodal as the preferred potential ADHD treatment for their child, a discriminant function and subsequent classification system was calculated. Participants were divided into three groups, based upon which treatment they indicated would be their first choice in treating their child's ADHD symptoms (behavioral treatment-only, medication treatment-only, or a multimodal approach). A discriminant analysis was utilized instead of a MANOVA or multiple ANOVAs, as we sought to compare if and how the *three* groups (i.e., the new grouping variable) differed on a linear combination of the discriminating variables, in order to create a new single index, which maximally discriminates between the groups. In other words, can a mother's first choice of treatment for her child's ADHD (medication treatment-only, behavior-treatment only, or a multimodal approach) be predicted by weighting (the discriminant function) scores across variables (stress, self-efficacy, child-ADHD symptom severity, and mother-child attachment) that produces as much separation as possible among the treatment choice groups**.**

Chapter IV

Results

Sample Description

To describe the sample, frequencies of participant demographics were calculated. Table 1 describes major demographics of the participants.

Table 1
Frequencies of Demographics Pertaining to Participating Mothers

Demographic Variable	Total (N=200)	Percentage
Race		
Native American	5	2.5%
African American	14	7%
Caucasian	116	58%
Asian/Pacific Islander	53	26.5%
Hispanic/Latino	7	3.5%
Multiethnic	5	2.5%
Marital Status		
Single	25	12.5%
Divorced	15	7.5%
Married	132	66%
Separated	6	3%
Committed Non-Married	22	11%
Sexual Orientation		
Heterosexual	195	97.5%
Homosexual	2	1%
Bisexual	2	1%
Other	1	0.5%
Household Income		
Less than $18,000	27	13.5%
$19-$25,000	23	11.5%
$26-$32,000	23	11.5%
$33-$45,000	26	13%
$46-$72,000	49	24.5%
$73-$99,000	37	18.5%
$100-$150,000	15	7.5%

Table 2 depicts the demographic information as it pertains to mothers' children about which the questionnaire was answered.

Table 2
Frequencies of Demographic Variables Pertaining to the Participants' Children

Demographic Variable	Total (N=200)	Frequency
Gender		
Male	116	58%
Female	84	42%
Race		
Native American	5	2.5%
African American	14	7%
Caucasian	110	55%
Asian/Pacific Islander	51	25.5%
Hispanic/Latino	7	3.5%
Multiethnic	13	6.5%
Grade in School		
Pre-Kindergarten	2	1%
Kindergarten	14	7%
First	47	23.5%
Second	39	19.5%
Third	32	16%
Fourth	24	12%
Fifth	20	10%
Sixth	13	6.5%
Seventh	7	3.5%
Eighth	2	1%
Diagnosis of ADHD (yes/no)		
Diagnosed	180	90%
Not Diagnosed	20	10%
Current IEP (yes/no)		
Yes	58	29%
No	142	71%
Other Diagnoses (yes/no)		
Yes	30	15%
No	170	85%
Description of Other Diagnoses		
Mood/Anxiety Disorder	8	4%
Conduct Disorder	5	2.5%
Oppositional Defiant Disorder	5	2.5%
Autism-Spectrum Disorder	4	2.0%
Bipolar Disorder	1	0.5%
Multiple Other Diagnoses	7	3.5%
No Other Diagnoses	170	85%

Similarly, descriptive analysis was performed on ADHD status related-variables as pertaining to the participant's child who was reportedly holding a current diagnosis of ADHD.

Table 3
Descriptives of ADHD-Status Related Variables Pertaining to the Participants' Children

Demographic Variable	Total (n = 180)	Frequency
Age Diagnosed		
Before or at Age Five	65	36%
Six	57	31.5%
Seven	29	16%
Eight	17	9.5%
Nine	8	4.5%
10	3	1.5%
11	1	1%
By Whom Child was Diagnosed		
Family Doctor	116	64.5%
Masters Psychologist	10	5.5%
Ph.D. Psychologist	27	15%
Psychiatrist	22	12%
Not Sure	5	3%
Treatment Received (yes/no)		
Treatment Received	168	93%
No Treatment Received	12	7%
Description of Treatment Received		
Medication	69	34.5%
Individual therapy	21	10.5%
Group Therapy	3	1.5%
Skills Training	7	3.5 %
Parent Education	4	2%
Nutrition Changes	6	3%
Multiple Treatments (with medication)	43	21.5%
Multiple treatments (no Medication)	35	17.5%
No Treatment Received	12	6%

Preliminary Analyses

Statistical evaluations of multiple linear regression assumptions including independence-of-observation, linearity, and homoscedasticity of residuals, were conducted for all major scaled variables. The criterion variables were behavioral therapy treatment openness (BTO), medication treatment openness (MTO), multimodal treatment openness (MMO), multimodal

treatment Acceptance (TAQ), total involvement (PMI-TTL), child involvement (PMI-CH), parent behavior (PMI-PA), and parent involvement (PMI-IN). The predictor variables were child-ADHD symptom severity (CPRS), stress (PSS), mother-child attachment (PCAS), and self-efficacy (PSOC). An analysis of standard residuals was conducted on the data to identify outliers. No outliers were identified. The assumption of independence of observation was met for BTO (Durbin-Watson value = 1.762), MTO (Durbin-Watson value = 2.111), MMO (Durbin-Watson value = 1.996), TAQ (Durbin-Watson value = 1.780), PMI-TTL (Durbin-Watson value = 1.798), PMI-CH (Durbin-Watson value = 2.005), PMI-PA (Durbin-Watson value = 1.765), and PMI-IN (Durbin-Watson value = 1.822). In addition, the assumption of no collinearity was met for predictor-variables (Child Age, VIF = 1.161; Mother Age, VIF = 1.206; CPRS, VIF = 1.327; PSS, VIF = 2.546; PCAS, VIF = 2.300, PSOS, VIF = 1.226). Review of the normal P-P plot of standardized residuals show the data fall on or near the line across analyses.

The pattern of statistical suppression across many analyses was found. Tzelgov and Henik (1991) outlined the most commonly accepted explanation of statistical suppression, defined as "a variable which increases the predictive validity of another variable (or set of variables) by its inclusion in a regression equation." In essence, in this study's regression analyses, the magnitude of the relationship between certain predictor variables and certain criterion variables was actually strengthened when entered into the regression equation with the other predictor variables. The predictor variables in these situations, when entered together into the various regression equations, accounted for more of the error variance than when correlations were calculated independently. Statistical suppression to the minimal extent seen in the current study is not uncommon and evidence of statistical suppression found in this manner, does not

dilute or lessen the quality of the analyses and corresponding results (Thompson & Levine, 1997).

To obtain an overview of the data, Pearson-correlations were calculated among all variables to produce a correlation matrix. As shown in Table 4, significant positive correlations were found between child's age on only two variables, including mothers' openness to medication treatment and mothers' age. As child's age increases, mothers' openness to medication increases, as does the mothers' age. Mother's age was also positively correlated to motivation to be involved in treatment (PMI-TTL), their motivation to change their behavior as a part of treatment (PMI-PA), and their general motivation to be involved in treatment (PMI-IN). Therefore, as mother's age increased, so did her motivation to be involved in treatment overall, and to potentially change her behavior as a part of said treatment. As the result of this correlational analysis, a statistical decision was made to control for mother and child age in the main analyses via hierarchical multiple regression.

Significant correlations were also found between the child-ADHD symptom severity (CPRS) and other variables. Specifically, CPRS was significantly correlated with stress (PSS), PMI-TTL, and PMI-CH. CPRS was negatively correlated with mother-attachment (PCAS) and maternal self-efficacy (PSOC)—as symptom severity increased, a mother's feeling of attachment toward her child and feelings of self-efficacy decreased.

Regarding correlations between measures' scaled-scores, significant positive correlations were found among stress (PSS) and other variables. Namely, PSS was negatively correlated with PCAS, and positively correlated with PMI-TTL, and PMI-CH—as a mother's stress increased, her feelings of attachment towards her child decreased. In addition, as stress increased, so did her motivation to generally be involved in treatment, as did her interest in her child changing his

or her behavior via treatment. Additionally, significant correlations were found between mother-child attachment and other variables, in which attachment had a negative correlation with PSOC, BTO, PMI-IN, and PMI-PA. Namely, as a mother's feelings of attachment toward her child increased, so did her feelings of self-efficacy, openness to behavior treatment, motivation to be involved in her child's treatment, and to change her behavior as a part of the child's treatment. Moreover, there was a significant negative correlation between PCAS and MTO, in which as attachment went down, openness to medication treatment increased.

Multiple correlations were also found between mothers' reported openness to different treatments as measured by the PMI. Specifically, openness to one treatment option was significantly positively correlated to openness for all other treatment options. In addition, openness toward multimodal treatments, was also significantly positively correlated to child behavior involvement (PMI-CH), in which as openness to multimodal treatment increased, so did mothers' motivation for her child to change his or her behavior via treatment. Lastly, the total score and subscales within the PMI were also significantly correlated with each other. Namely, PMI-TTL was positively correlated to the PMI-PA, and PMI-IN subscales (which were also correlated with each other), and was only negatively correlated with PMI-CH. This means that a mother's readiness to change her behavior as a part of treatment, her interest in being involvement in treatment, and the combined scores of all subscales all increased together; however, overall motivation to be involved in treatment (PMI-TTL) increased as motivation/need to specifically have her child change his or her behavior decreased.

Table 4.
Bivariate Correlations between all scaled variables

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Symptom Severity (CPRS)	--													
2. Parent Stress (PSS)	.425**	--												
3. Attachment (PCAS)	-.440**	-.737**	--											
4. Self-Efficacy (PSOC)	-.130	-.422**	.298**	--										
5. Treatment Acceptance (TAQ)	-.028	.073	-.040	.066	--									
6 Behavior Tx Openness (BTO)	.073	-.259**	.281**	.169*	.138	--								
7. Med Tx Openess (MTO)	.075	.296**	-.208**	-.075	.601**	-.065	--							
8. MultiModal Tx Openess (MMTO)	.019	.068	-.047	.121	.663**	.213**	.693**	--						
9. Total Involvement (PMI-TTL)	.193**	-.069	.090	.085	.381**	.439**	.100	.155*	--					
10. Child Involvement (PMI-CH)	.404**	.243**	-.231**	-.031	.309**	.231**	.154*	.069	-.800**	--				
11. Parent Behavior (PMI-PA)	.052	-.232**	.287**	.100	.304**	.461**	.028	.102	.908**	.556**	--			
12. Parent Involvement (PMI-IN)	.076	-.171*	.189**	.138	.373**	.458**	.074	.186**	.946**	.627**	.880**	--		
13. Mother Age	.084	-.128	.108	.019	.032	.217**	.002	.013	.235**	.131	.245**	.257**	--	
14. Child Age	-.057	-.049	.081	.034	.014	-.043	.140*	.042	.006	-.014	-.040	.008	.356**	--

* $p < .05$, ** $p < .01$

Main Analyses

Research Question One. Do stress (PSS), self-efficacy (PSOC), mother-child attachment (PCAS), and child-ADHD symptom severity (CPRS) predict mothers' level of openness towards behavioral-only treatment, medication-only treatment, and multimodal treatment?

To answer research question one, three hierarchical multiple regression analyses were conducted, with openness toward medication treatment (MTO), openness toward behavioral treatment (BTO), and openness toward multimodal treatment (MMO) as the respective criterion variables. To control for mother and child ages, they were entered into block one, and MTO, BTO, and MMO were simultaneously entered into block two.

Openness toward Behavior Treatment as the Criterion Variable. Results showed that when entered as a unit, age as a was a significant predictor of BTO, and explained about 6% of the variance ($F(2,197) = 6.683$, $p = .002$), with only mother's age being a statistically significant when ages were examined independently ($p < .001$). When entered into the equation at Step-2, the predictors as a set significantly predicted BTO, accounting for an additional 18% of the variance ($F(6,193) = 7.072$, $p < .001$) above and beyond the age of the mother and child. When examining whether each variable independently improved the model, PCAS ($p = .007$), and CPRS ($p = .004$) were significant predictors, while PSS ($p = .319$) and PSOC ($p = .306$) were not. Results suggest that as a mother ages, her feelings of attachment toward her child increase, her perceived severity of her child's symptoms of ADHD increase (irrespective of child age), as does her openness to use behavioral treatment to address her child's symptoms. Partial regression coefficients are reported below in Table 5.

Table 5
Regression Model to Predict Openness toward Behavioral Treatment

Variable	*b*	β	95% CI for β
Step 1			
Constant	69.336		[52.058, 86.615]
Mother's Age	.862	.266**	[.390, 1.335]
Child's Age	-1.643	-.138	[-3.376, 0.91]
Step 2			
Constant	25.460		[-23.887, 74.808]
Stress	-.211	-.104	[-.629, .206]
Attachment	1.110	.268*/***	[.304, 1.916]
Self-Efficacy	.237	.074	[-.218, .693]
Symptom Severity	.287	.221*/***	[.095, .479]

Note: Step 1 R^2 =.064, $\Delta R2$ =. 054; Step 2 R^2 =.180, $\Delta R2$ =.155
*p <.05, **p<.001, *** evidence of statistical suppression (significant variables only)

Openness toward Medication treatment as the Criterion Variable. When examining mothers' openness toward medication treatment (MTO), mother and child age did not significantly predict MTO ($F(2,197) = 2.228$, p =.111). In Step-2, the predictors as a set significantly predicted MTO, accounting for about 12% of the variance ($F(6,193) = 4.269$, p <.001). When examining whether each variable independently improved the model, only PSS (p = .001) emerged as a significant predictor of openness MTO; as a mother's stress increased, so did her openness towards using medication to address her child's symptoms. PCAS (p = .946), PSOC (p = .391), and CPRS (p = .400) were not significant predictors. Overall, results indicate that as a mother's stress level increases, so does her feelings of openness to use medication to treat her child's ADHD. Partial regression coefficients are reported below in Table 6.

Table 6
Regression Model to Predict Openness toward Medication Treatment

Variable	*b*	β	95% CI for β
Step 1			
Constant	37.779		[9.763, 65.794]
Mother's Age	-.282	- .055	[-1.048, .483]
Child's Age	3.008	.159*/***	[.197, 5.818]
Step 2			
Constant	-19.965		[-101.223, 61.292]
Stress	1.129	.350**/***	[.442, 1.816]
Attachment	-.042	-.006	[-1.369, 1.286]
Self-Efficacy	.313	.062	[-.437, 1.064]
Symptom Severity	-.123	-.060	[-.440, .194]

Note: Step 1 R^2 =.022, ΔR2 =. 012; Step 2 R^2 =.117, ΔR2 =.090
*p <.05, **p <.001, *** evidence of statistical suppression (significant variables only)

Openness toward Multimodal Treatment as the Criterion Variable. Results showed that mother and child age did not significantly predict MTO ($F(2,197) = .172$, $p = .842$). In addition, PSS, PSOC, PCAS, and CPRS were not significant predictors of parent openness toward multimodal treatment ($F(6,193) = 1.148$, $p = .336$).

Research Question Two. Do stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity predict mothers' acceptability rating of multimodal treatment?

To answer research question three, a hierarchical multiple regression was performed, with treatment acceptability as the criterion variable. Age was not a significant predictor in mothers' acceptability rating of multimodal treatment ($F(2,197) = .102$, $p = .903$), with an R^2 of .001 (ΔR2 = -.009). PSS ($p = .116$), PCAS ($p = .936$), PSOC ($p = .109$), and CPRS ($p = .273$) were not significant predictors of mothers' feeling of acceptability of multimodal treatment ($F(6,193) = .102$, $p = .846$), with an R^2 of .026 (ΔR2 = -.005).

Research Question Three. Do stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity predict a mother's level of motivation to be involved in her child's treatment?

To answer research question four, a hierarchical regression was conducted with motivation to be involved in treatment (PMI-TTL) as the criterion variable, reflecting participants' total score across the PMI (summation of all three subscales). Results showed that when entered as a unit, mother and child age significantly predicted PMI-TTL, explaining about 6% of the variance ($F(2,197) = 6.537$, $p = .002$). However, only mothers' age was a statistically significant predictor of PMI-TTL ($p < .001$) when ages were examined independently. When entered into the equation at Step-2, the predictors as a set significantly predicted PMI-TTL, accounting for an additional 12% of the variance ($F(6,193) = 4.406$, $p < .001$). More specifically, after controlling for age, only CPRS ($p = .001$) was a significant predictor of mothers' motivation to be involved in treatment. Findings indicate as a mother's age and the severity of her child's ADHD symptoms increase, the more likely she is to be motivated to be involved in her child's treatment. Partial regression coefficients are reported below in Table 7.

Table 7
Regression Model to Predict Motivation to be Involved in Treatment

Variable	*b*	β	95% CI for β
Step 1			
Constant	88.030		[74.450, 101.609]
Mother's Age	.680	.267**/***	[.309, 1.051]
Child's Age	-.835	-.089	[-2.198, .527]
Step 2			
Constant	56.853		[16.709, 96.997]
Stress	-.009	-.006	[-.348, .330]
Attachment	.517	.159	[-.139, 1.173]
Self-Efficacy	.167	.067	[-.203, .538]
Symptom Severity	-.256	.251*/***	[.100, .413]

Note: Step 1 $R^2 = .062$, $\Delta R2 = .053$; Step 2 $R^2 = .120$, $\Delta R2 = .093$
*$p < .05$, **$p < .001$, *** evidence of statistical suppression (significant variables only)

The PMI also includes three descriptively unique subscales which all contribute to the measure's total score (total score results depicted above). Given the results from total score analysis, three follow-up hierarchical multiple regressions were performed with each subscale score serving as a criterion variable to provide explore additional predictive patterns for parent involvement.

Involvement via Child's Behavior Change (Subscale One). Results showed that age as a set was a non-significant predictor of mothers' motivation for child behavior change (PMI-CH) ($F(2,197) = 2.159$, $p = .118$). When entered into the equation at Step-2, the predictors as a set significantly predicted PMI-CH, accounting for 19% of the variance ($F(6,193) = 7.434$, $p < .001$). When examining whether each variable independently improved the model, only CPRS ($p = .001$) was significant. Therefore, a mother's motivation to be involved in treatment to specifically address child's behavior change, increased as her child's symptom severity increased. Partial regression coefficients are reported below in Table 8.

Table 8
Regression Model to Predict Motivation for Involvement via Child's-Behavior Change

Variable	*b*	β	95% CI for β
Step 1			
Constant	21.312		[17.349, 25.276]
Mother's Age	.114	.156*	[.005, .222]
Child's Age	-.186	-.070	[-.583, .212]
Step 2			
Constant	13.630		[2.606, 24.653]
Stress	.060	.132	[-.033, .153]
Attachment	-.018	-.019	[-.198, .162]
Self-Efficacy	.052	.073	[-.050, .154]
Symptom Severity	.098	.335**/***	[.055, .141]

Note: Step 1 $R^2 = .021$, $\Delta R2 = .012$; Step 2 $R^2 = .188$, $\Delta R2 = .162$
*$p < .05$, **$p < .001$, *** evidence of statistical suppression (significant variables only)

Involvement via Self-Behavior Change (Subscale Two). Results showed that age as a set significantly predicted mothers' motivation for involvement via self-behavior change (PMI-

PA) ($F(2,197) = 6.586$, $p = .002$), accounting for approximately 6% of the variance. However, only mothers' age ($p < .001$) was significant when ages were analyzed independently. When entered into the equation at Step-2, the predictors as a set significantly predicted PMI-PA, accounting for an additional 16% of the variance ($F(6,193) = 6.194$, $p < .001$). When examining whether each variable independently improved the model, PCAS ($p = .002$) and CPRS ($p = .011$) were significant. In total, results signify that as mother's age, feelings of attachment toward her child, and her child's symptom severity increase, as does her motivation to be involved in treatment by specifically addressing ways to change her own behavior. Partial regression coefficients are reported below in Table 9.

Table 9
Regression Model to Predict Parent Motivation for Involvement via Self-Behavior Change

Variable	*b*	β	95% CI for β
Step 1			
Constant	20.580		[16.993, 24.167]
Mother's Age	.178	.264**	[.080, .276]
Child's Age	-.133	-.054	[-.493, .226]
Step 2			
Constant	11.307		[.950, 21.664]
Stress	-.026	-.061	[-.113, .062]
Attachment	.264	.308*	[.095, .433]
Self-Efficacy	.004	.005	[-.092, .099]
Symptom Severity	.052	.194*	[.012, .093]

Note: Step 1 $R^2 = .063$, $\Delta R2 = .053$; Step 2 $R^2 = .161$, $\Delta R2 = .135$
*$p < .05$, **$p < .001$, *** evidence of statistical suppression (significant variables only)

General Involvement (Subscale Three). Results showed that age as a set significantly predicted mothers' motivation for involvement (PMI-IN) ($F(2,197) = 7.885$, $p = .001$), accounting for about 7% of the variance. However, only mothers' age ($p < .001$) was significant when mother and child age were analyzed independently. When entered into the equation at Step-2, the predictors as a set significantly predicted PMI-IN, accounting for an additional 13% of the variance ($F(6,193) = 5.576$, $p < .001$). When examining whether each variable

independently improved the model, only CPRS (p = .042) was significant. As mothers age and her child's symptom severity increase, so does her general motivation to be involved in treatment (irrespective of it requires her behavior to change or that of her child). Partial regression coefficients are reported below in Table 10.

Table 10
Regression Model to Predict General Motivation to be Involved in Treatment

Variable	*b*	β	95% CI for β
Step 1			
Constant	28.075		[23.367, 32.783]
Mother's Age	.259	.291**	[.130, .388]
Child's Age	-.311	-.095	[-.783, .161]
Step 2			
Constant	17.860		[3.919, 31.801]
Stress	-.022	-.039	[-.139, .096]
Attachment	.209	.185	[-.018, .437]
Self-Efficacy	.075	.085	[-.054, .204]
Symptom Severity	.056	.159*/***	[.002, .111]

Note: Step 1 R^2 =.074, $\Delta R2$ =. 065; Step 2 R^2 =.129, $\Delta R2$ =.102
*p <.05, **p<.001, *** evidence of statistical suppression (significant variables only)

Research Question Four. Do the predictor variables (stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity) accuracy distinguish between mothers who select behavioral-only, medication-only, or multimodal as the preferred ADHD treatment for their children?

To answer research question four, a discriminant function analysis was performed to ascertain how well predictor variables could differentiate between mothers on the basis of what treatment option they indicated would be their first choice in treating their child's ADHD symptoms. There were three groups of mothers: (a) mothers who indicated behavior therapy as their first choice (BEH1), (b) mothers who indicated medication as their first choice (MED1), and (c) mothers who indicated a multimodal approach (medication and behavior therapy) as their first choice of treatment (MUL1). All four predictor variables entered into previous regression

analyses were incorporated in the discriminant function, including stress (PSS), self-efficacy (PSOC), mother-child attachment (PCAS), and child-ADHD symptom severity (CPRS). The combination of the first and second canonical functions significantly differentiated the groups of mothers (Wilks $\lambda = .833$, $\chi_2 (8) = 35.683$, $p < .001$). After removal of the first function, there were no significant associations found between the groups and predictors (Wilks $\lambda = .963$, $\chi_2 (3) = 7.405$, $p = .060$). The two discriminant functions account for 80.1% and 19.9%, respectively, of the between-group variances. Table 11 presents the standardized and unstandardized discriminant function coefficients. PSS had a positive correlation with the function (0.970), as did PSOC (0.505). CPRS had a negative correlation (-0.594) as did PCAS (-0.362). Because of the strong weight of maternal stress and self-efficacy, Function 1 was labeled as Maternal Functioning to highlight the relative importance of maternal-specific factors in the discrimination of groups based on top treatment choice.

Table 11
Standardized & Unstandardized Canonical Discriminant Function Coefficients

Function Variables	Function 1 Maternal Functioning	Function 2
Unstandardized		
(Constant)	-2.415	-7.037
Stress	0.095	0.086
Attachment	-0.072	0.203
Self-Efficacy	0.075	-0.083
Symptom Severity	-0.036	-0.020
Standardized		
Stress	0.970	0.878
Attachment	-0.362	1.024
Self-Efficacy	0.505	-0.554
Symptom Severity	-0.594	-0.339

Table 12 shows the two functions at the group centroids (or vector of means on the two new canonical variables) formed by applying the discriminant function weights. A Territorial map for the analysis can be found in Figure 1 (Appendix L).

Table 12
Functions at Group Centroids

Group Treatment Preference	Function 1 Maternal Functioning	Function 2
Behavior Treatment 1st choice (BEH1)	-0.267	0.014
Medication Treatment 1st choice (MED1)	0.636	0.303
Multimodal Treatment 1st choice (MUL1)	0.495	-0.383

Reclassification of cases based on the new canonical variables was successful, in which 55.5% of the cases were correctly reclassified into their original three categories. Original study sample specified group frequencies to fall at .680 (BEH1), .165 (MED1), and .155 (MUL1). The function probabilities specified, predicted group membership to fall at .485 (BEH1), .250 (MED1), and .265 (MUL1), which put 97 cases (.485 x 200) in the BEH1 group, 50 in the MED1 group, and 53 in the MUL1 group. If participants were randomly assigned to the three groups, 47 (.485 x 97) of those assigned to the BEH1 group, 12.5 in the MED1 group, and 14 in the MUL1 group, should be correct by chance alone. Therefore, out of all three groups, 36.5% should be correct by chance alone. The classification procedure used here correctly classified substantially more than that (55.5%). Overall, the first function demonstrated the greatest discrimination between group memberships. Therefore, it can be concluded that the factors of PSS, PCAS, PSOC, and CPRS serve as a good predictive measure to discriminate between mothers who report medication, behavior therapy, or multimodal treatment to be their first treatment choice for their children's ADHD symptoms.

Chapter V

Discussion

As rates of ADHD diagnoses continue to rise, and as it remains to be the number one presenting complaint of parents who seek psychological services for their children (DSM-5, 2014; NSCH, 2013), practitioners are increasingly likely to work with families seeking services for ADHD. The most up to date empirical research overwhelmingly suggests families that are highly involved in a multimodal treatment which combines behavior therapy and medication, are most likely to see the best treatment outcomes (Ferrin et al., 2014). While there is a significant body of literature examining different ADHD treatments and their related efficacy, few studies explore the factors that contribute to the ultimate treatment a family chooses to pursue. Given the relative gap in the literature, this study examined the predictive power of stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity in relation to a mother's openness toward treatments, her top choice of treatment, and her motivation to become involved in the treatment. Moreover, this study considered both the age of the child and mother when examining potential patterns. The current study provided evidence for the dynamic interplay of these factors in relation to a mother's openness toward different ADHD treatments, her top choice of treatment for her child, and her level of motivation to be involved in treatment. The following sections expand upon these findings, offer interpretations of results, discuss implications for clinical practice, and outline areas of potential future research.

Understanding factors that influence parents' openness towards different treatment options for their child's ADHD symptoms is important for practitioners. Parents often indicate feelings of hesitation and uncertainty when faced with initial decisions regarding treatment, which undoubtedly affects their openness towards specific treatment options (Bussing, Gary,

Mills, & Garvan, 2003). The findings of this study demonstrated that overall, the combination of stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity predict a mother's level of openness towards medication-only treatment and behavior-therapy-only treatment.

Regarding behavior therapy-only treatment, the age of the mother was a significant factor in predicting openness toward this treatment, as was mother-child attachment, and child-ADHD symptom severity. Interestingly, it is not the child's age that predicts a mother's openness toward behavioral treatment, but rather the age of the mother—older mothers are more likely to be interested in behavior therapy for their child, particularly those who report a strong mother-child attachment, and also have a child whose symptoms are interpreted as severe. While the research of the connection between age of the mother and her choice for treatment is limited, some literature exists which may possibly explain such a pattern. For example, Culp, Applebaum, Osofky, and Levy (1988) found that older mothers tended to display more positive affect, and be more responsive to and involved with their children. Younger mothers, particularly those under the age of 26, tended to also engage in more punitive and less productive discipline than older mothers (Lee, 2009). In addition, results from the nationally representative Early Childhood Longitudinal Study-Birth cohort data set from 9,250 children and their parents, found that young-adult mothers were "not as developmentally ready for parenting as older mothers" (p. 40). Older mothers were more supportive to their children, demonstrated more positive affect and interactions, were more consistent and less punitive in their discipline, were more engaged, and in general, seemed to be more able to respond to their child's needs, and with greater ease, than younger mothers (Lewin, Mitchell, & Ronzio, 2013).

The current study highlights the important role of attachment and maternal age relative to her parenting practices and self-concept. Our findings support past literature, such as studies described above, outlining that it is not only the self-efficacy of a mother, and her parenting skill-set that is important when considering her openness to behavior therapy (Lee, 2009). Rather, it is how these factors contribute to a positive emotional connection between a mother and her child (i.e., attachment), which allows mothers to have more emotional energy and positive feelings about the prospect of engaging in more activities (e.g., behavior therapy) with their children.

When examining mothers' openness to medication-only treatment, results indicated mothers' age was a significant predictor. In addition, after age was controlled for in the first step of the hierarchical regression, the combined predictive variables accounted for an additional 12% of the variance of mothers' reported openness to medication-only treatment. However, unlike openness to behavior therapy, only stress was predictive of medication-openness. It seemed the more stressed a mother felt, regardless of all other factors, the more likely she would be open to medication-only treatment. A key finding from this specific analysis was that it was not the presentation of the child (i.e., the child's symptom severity or age) that led to mothers' openness towards medication only treatment, but rather her subjective experience of stress!

The fact that mothers who report higher stress are more likely to pursue medication as the primary means of treatment over other options, may be problematic given the poor rates of medication adherence over time. For instance, only about 36-68% of children consistently use ADHD medications once initiated (Charach & Gajaria, 2008), and adherence continues to decline over time from approximately 50% at two years, to only 36% at five years. This decline is particularly troublesome given the fragile state of many families who pursue medication. For

instance, in a study which examined parents' decision making process in choosing medication, Cormier (2012) found that parents who pursued psychostimulant medication for their child, did so in response to "experiencing a disruption within the family, as a function of parenting demands associated with their child's ADHD-related problems" (p. 352). This was identified as the main factor underlying parents' decisions to choose medication as their first line of defense. However, these same parents who reported "high stress," were the least likely adhere to the medication treatment. The repercussions for not following through with medication treatment are worrisome, especially given the fact that parents who opt for medication have often pursued alternative therapies first (Cormier, 2012; Peters & Jackson, 2008), and may be using medication as a last resort. The results of the current study expand upon existing findings by parsing out the child versus parent factors regarding openness to medication. Specifically, a mother's openness to medication only treatment may greatly reflect a stressed state of not knowing where else to turn, and having exhausted personal resources.

Given this trend, one of the underlying agendas driving the design of the current study was to explore parents' openness toward multimodal treatment for their child with ADHD. The motivation for this exploration was to add to the body of literature seeking to explain the relatively low number of parents who pursue multimodal treatment, and to provide practitioners with more information to address and potentially alter this trend. Therefore, analyses examining mothers' openness toward multimodal treatment was of particular interest. Somewhat disappointingly, the factors of stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity were not significant predictors of mothers' openness towards a multimodal approach (combining medication and behavior therapy), even when controlling for age of the mother and child. In addition, research question two sought to see if the aforementioned factors

would predict the acceptability (e.g., how good) a mother felt a multimodal approach is for her child. Again, these factors were not significant predictors. One possible explanation for the lack of significance, may be that multimodal treatment, as described in the current study, included both medication and behavior therapy. Given the significant roles of the predictive variables on the other two forms of treatment, it is possible that their relative influences may have been canceled out when these two techniques were combined together in a multimodal approach. However, more research would be needed to confirm this connection.

The fourth research question was aimed to expand upon the first three research questions, by exploring if stress, self-efficacy, mother-child attachment, and child-ADHD symptom severity could distinguish mothers who selected behavior-only, medication-only, or multimodal as their preferred ADHD treatment for their child. Discriminant function analysis showed that when these factors are examined as a simultaneous construct (like a new variable), they do distinguish mothers who picked each treatment as her top choice. Furthermore, stress and self-efficacy showed a strong positive correlation to top treatment choice, and child-ADHD symptom severity and mother-child attachment had a strong negative correlation. In addition, stress and self-efficacy were the most important factors when predicting mothers' top treatment choice, particularly when she chose medication. It seemed that the more stress a mother felt, and the lower her self-efficacy, the more likely she was to opt for medication, and the less likely she was to opt for behavior-therapy or a multimodal approach. Once again, this shows that variables related to the mother were stronger factors than those related to the child (i.e., symptom severity and attachment) in mothers' treatment preference. This finding highlights the importance of attending to maternal factors when thinking about treatments for children with ADHD.

The findings discussed above are particularly interesting when examined in relation to the current sample of participants. For instance, 56% (n = 112) of mothers reported their child was currently using medication as the primary treatment for his or her ADHD. This is drastically different from the mere 18 % (n = 33) of mothers that indicated medication would be their first choice of treatment if given options. In fact, the vast majority of mothers, 68% (n = 136) actually reported behavior therapy would be their first choice. Multimodal treatment was actually the least popular option with only 15.5% (n = 31) opting for this treatment first. We see that even though mothers are reporting that they rather pursue behavior treatment over medication, many more actually end up using medication in treatment, with 34.5% (n = 65) using it exclusively. This finding is even more interesting when we combine it with the fact that when the specific components of a multimodal treatment, along with the firm evidence for positive outcomes of this treatment are described to mothers (within the TAQ), mothers overwhelmingly reported it as a treatment option they feel would be good for their child (M = 39.41; SD = 11.38). Yet they still do not opt for it as their top hypothetical treatment approach, and do not actually use it that highly in comparison to other approaches as reported in the demographics section.

Why would a mother indicate a treatment as being a good option for her child but not pursue it? One potential reason mentioned repeatedly in the literature, is the high level of involvement multimodal and behavioral treatments require from parents. The demands of multimodal treatments are often challenging for parents, particularly mothers, to negotiate. This seems to be especially true in multi-child households, households with two working parents, or in single parent households (Theule et al., 2011). In order to examine the potential contribution of parents' motivation to be involved, this construct was explicitly examined in the current study. Specifically, research question three examined the factor of motivation for involvement within

the context of how it could be predicted by maternal stress, maternal self-efficacy, mother-child attachment, and child-ADHD symptom severity. The intention was that if predictive patterns arose, it could partially explain why mothers acknowledge multimodal treatment as a good option for their child, but do not pursue it.

To examine the complexity of maternal motivation to be involved, motivation for involvement was broken down into three different areas, reflecting the construction of the study's measure (PMI). The first area is general interest to be involved as reflected by endorsement of questions such as "I want to be involved in my child's treatment at this point in time." The second area examined maternal motivation to be involved in order to change their *child's* symptoms, as measured by endorsement of questions such as "I look forward to learning new techniques for managing my child's behavior." The third subscale measures maternal motivation to be involved via changing their *own* behaviors, reflected in endorsement of questions such as "I am willing to change my current parenting techniques and try new ones." Results showed that mothers' age was a significant predictor for mothers' general interest to be involved in her child's treatment, and in her interest in changing her own behavior—older mothers were more likely to be willing to change their behaviors and to feel ready to get involved in treatment. However, age did not matter in a mother's interest in engaging in treatment aimed at changing her child's behavior. Basically, a mother's interest in getting involved in treatment to specifically address her child's behavior was similar across ages. After age was controlled for, the analysis revealed that child-ADHD symptom severity was a significant predictor of mothers' motivation to pursue treatment. The higher the child's symptoms, the more motivated a mother reported to be to pursue treatment to address these symptoms, and the more she reported to be motivated to be involved, generally speaking.

When looking at the level of reported motivation a mother has to change her own behavior via therapy, the four predictor variables together accounted for about 16% of the variance, above and beyond age. Interestingly, when variables were examined independently, both the child's symptom severity and the quality of the mother-child attachment were predictive of a mother's interest in changing her own behavior. A mother's interest in changing her own behavior as a part of treatment significantly increased when she reported stronger attachment between herself and her child, and severity ADHD symptoms of her child. Study findings are only somewhat consistent with past research. Specifically, previous research has shown that parent stress is often a deterrent for parent involvement (Theule et al., 2011), in which the more stressed a parent feels, the more likely they lack energy or resources to dedicate to treatment. Findings did not identify maternal stress as a predictive factor in this case. One explanation for the findings may be that the current study asked mothers their *reported* feelings of motivation to be involved, not what they were actually doing. This may suggest that mothers want to be involved, but in reality, may not be as involved as they would like. In addition, consistent with previous research, the quality of the mother-child attachment appeared to have a positive role in mothers' willingness to change her own behavior. According to Bowlby (1982), poor attachment between mother and child, often leads mothers to have feelings of resentment or detach from their children. This was demonstrated in a study by Smith (1994) who studied children aged four to 18 with ADHD, and their mothers. These children also demonstrated severe and persistent ADHD symptoms (i.e., children who demonstrated out-of-control behaviors and were demanding). Though it was not a main focus of the research, the results showed that more severe symptoms, such as aggression (across ages) and persistent crying in infancy, was associated with increased hostility and rejecting behaviors from mothers toward

their children. When children's symptoms lessened, stronger attachments were observed as was more positive maternal functioning and emotions. Therefore it could be expected that stronger attachment would keep mothers engaged, even in the face of difficult situations. Such previous research pairs well with the current study, which specifically ties these patterns in attachment and child symptom severity to a mother's willingness and motivation to specifically address her own behavior, a component commonly needed for successful treatment and outcomes (AAP, 2011).

Summary and Implications for Clinical Practice

The results of the current study suggest that considering mothers' mental health and functioning is a critical process when helping parents choose a treatment for their child that works for the family, and is most likely to provide clear benefits to the child. While logic may suggest that treatment choice is driven by the symptom-presentation of the child, study findings did not support this claim, at least not pertaining to stimulant-medication based treatments. When examining openness to medication-only treatment, maternal stress was the sole predictor. Conversely, when examining behavior therapy-only treatment, the factors predicting maternal openness were more related to the child, namely the severity of symptoms and the attachment relationship. These factors were not predictive of openness toward a multimodal approach. Regarding a mother's motivation be involved in treatment, multiple factors contributed to patterns. In particular, the more symptoms a child demonstrated, the more a mother reported feeling the need to engage in treatment. In addition, a mother's reported level of attachment to her child was the main predictor of her willingness to change her behaviors as a part of therapy.

Overall, it appears that mothers recognize the need to be involved in treatment, and report being ready to do so, but still end up using medication more often than behavioral treatments,

and engage in multimodal approaches even less often. Mothers even report that while they feel a multimodal approach is a good option for their child, it is the least preferred method overall. This supports past research that just because a parent recognizes a therapy is a good option (i.e., evidence based), it does not mean that they would actually choose it, or stick with it once chosen (Charach et al., 2006). This discrepancy again highlights how challenging it can be for parents to progress in the process from recognizing a multimodal treatment as a good option, to being open and ready to engage in one. This is particularly true for minority populations, who underutilize treatments relative to their white peers, and often have even more barriers in finding and using services (Berger-Jenkins et al., 2012). Discrepancies in service patterns by culture, signifies increased need to address treatment utilization through a cultural lens. Within the context of past literature, what current results demonstrated, is mothers report they want to be involved, and many reported being ready to address both their behavior and their child's, but something is blocking them from actualizing this. While many factors may be implicated, such as accessibility, finances, or time, what this study's results also suggest, is that the more stressed a mother is, and the less confident she feels in her ability to help make changes, the more open she likely is to pursue medication over other options. That is where practitioners can step in.

Research clearly chows that having a child with ADHD is stressful. According to Rabiner (2011), parents of children with ADHD report greater parenting stress, less satisfaction with their parenting role, and more depressive symptoms than other parents. These parents are more likely to become disengaged from their child and less involved in treatment. This trend is not restricted to multimodal or behavior-therapy interventions alone. Research has shown that about 25% of children prescribed medication discontinue its usage, particularly within the first few months, and do not pursue additional treatments (Charach et al., 2006). This was tied to

reports from parents that medication did not seem impactful, or the side effects were too intense. Trends such as these mean it is exceedingly important for practitioners to help parents build a realistic multi-tiered treatment approach (with culture in mind), which explicitly addresses the real demands any treatment has on a family, and strategizes how to help a family navigate these evolving costs and benefits.

What is becoming clear, is that successful treatment is not just about the child's symptoms. In fact, research has shown that the adverse impact of children's ADHD symptoms on parents such as decreased parental functioning, are not actually due to the child's ADHD symptoms themselves, but rather the parents' *perception* that their child is largely unresponsive to correction (Bussing et al., 2003). When we examine trends like this, combined with the results of the current study, we see that when practitioners want to see positive outcomes for the child, they need to consider where the parent is emotionally and physically. In addition, anything practitioners can do to lessen a mother's stress and support the positive connection and attachment between her and her child, the more likely she will be open to behavioral approaches, and the more willing she will be to address her behavior as a part of treatment.

Effective ADHD treatment takes a tremendous amount of parental energy to produce lasting effects. Given the strong research evidence that treatment options requiring more parent involvement are more effective over medication management alone (Fabiano et al., 2009), practitioners need to find ways to get parents more involved, while not ignoring or downplaying the real strain this demand puts on parents. In addition, while the idea of time and energy given towards behavioral interventions and parenting classes may seem daunting and stressful, engagement in these classes actually appears to help decrease parents' stress levels, while simultaneously decreasing children's symptoms (Gerdes et al., 2012). Not only that, but

involving parents in interventions for ADHD may also have therapeutic benefits for the parents (Barlow et al., 2012). This is particularly appealing as parents of children with ADHD often report higher levels of depression and ADHD symptoms (Barkley et al., 2002). Moreover, Gerdes et al. (2012), found that behavioral training actually played a significant role in decreasing parent stress long-term, even though it may be perceived to add stress at the onset. Findings such as these, suggest that even though multimodal approaches may seem stressful for parents, particularly when these treatments are beginning, stress levels usually go down over time, which is likely directly related to decreases in child symptoms, better family cohesion, higher feelings of parent and child efficacy, all which help to alleviate stress and promote functioning.

It is the job of practitioners to help clients select the treatment that is right for them and their family, which also has the most research-backed efficacy. Given the cultural differences relative to ADHD (including diagnosis, treatment, and accessibility of care), cultural impacts should always be considered in tandem. Given the strong impact of maternal factors in choosing treatments, moving forward, these factors need to be addressed when working with families of diverse groups on how to best help their child. Perhaps this means practitioners need to reconceptualize how they define a multimodal approach. For each layer of care suggested to directly treat the child, more and more is being asked of the parents—parents who are limited emotionally, physically, and financially. This needs to be explicitly addressed and plans set in place to counteract this pattern and prevent parent-treatment-burnout. Our children are almost fully dependent on their parents, particularly mothers, for nearly all aspects of their lives and well-being. Maybe when we start planning treatment for the child, we need to step back and ask mom what she needs to get by. What can we do to help her feel less stressed and what practical

tools does she need to implement behavioral strategies. Instead of telling a mother another area in which she failed or needs to do better, let's help her feel empowered to succeed and ask for the support she understandably may need.

Limitations

The present study contains several limitations which should be addressed in future studies. First, the sample size is relatively small given the number of analyses performed. The sample size may be one of the reasons that some of the results only approached significance. Furthermore, due to the sample size, some of the demographic variables such as socioeconomic status and ethnicity, were not included in the analyses. While this does not take away from the importance of the current findings, it does mean that generalizability may be limited, or at least should be proceeded with extreme caution. In addition, while research regarding the use of MTurk has shown that MTurk participants are truthful and consistent when providing demographic information (Rand, 2011), are as reliable as non-MTurk samples, and are more representative of the general population than traditional student samples (Buhrmester, et al., 2011), this technology is still relatively new within behavioral studies. Therefore, the limitations of this participant population may not be fully understood at this time.

In addition, while this study sought to include a wide range of participants from varying backgrounds, only mothers were allowed to participate given the large discrepancies often found between mothers and fathers regarding symptom report (Langberg et al., 2010) and to prevent clustering effects of a mother and father both responding to the same study. This clearly means that results and related implications from this study are reserved for consideration for mothers alone. Generalizability to fathers, or other primary caretakers should be done with extreme caution.

Directions for Future Research

The current study supports the notion that maternal stress, maternal feelings of self-efficacy (related to the care of her child), mother-child attachment, and a child-ADHD symptom severity serve to predict different components of maternal openness to different ADHD treatments for her child, and the extent to which a mother is motivated to be involved in treatment by various means. The current study only examined four potential variables which could affect these factors. Though the choice for the current variables was backed by theory supporting their influence of child and parent functioning and wellbeing for children in general, and ADHD more specifically (Bandura, 1977; Barkley, 1997; Bowlby, 1958; Lazarus & Folkman, 1984), future research may seek to identify more variables which could relate to mothers' openness toward treatments and motivation for involvement.

While this study did not focus on the cultural differences, but instead focused on broad patterns relative to the outlined research questions, more data on the effects of multicultural differences should be explored. Specifically, as we see patterns in diagnosis and treatment choice for ADHD relative TO culture, research tends to focus on the fact that different patterns exist rather than why these patterns occur. This is particularly disconcerting as children of lower socioeconomic status are significantly more likely to be diagnosed with ADHD than their white counterparts, as are children of color (NSCH, 2013). As minority populations are more vulnerable to the negative consequences of socioeconomic status and access to care, examining how culture and race influence parents' openness toward treatment and their motivation for involvement would be highly valued. This is particularly important given the need to help

individuals find appropriate care to mitigate future negative consequences related to untreated symptoms or damaging labels.

The current study focused on mothers of children with ADHD based upon the fact that mothers in general, are more involved in the treatment of their children (Fabiano, 2007), and to control for the finding that significant discrepancies in symptom report and general treatment perspectives exist between mothers and fathers (Langberg et al., 2010). However, as Fabiano emphasizes, the fact that fathers are often less involved in treatment decision making and subsequent care, is a trend that should be explored. Particularly given the findings of the current study which emphasize the role of maternal stress in predicting openness to certain treatments and in motivation for treatment involvement, increased paternal involvement could potentially mitigate this pattern. Increased paternal involvement also has the added effect of increasing consistency in behavioral interventions used in the home, and parenting practices in general, which are shown to be critical for treatment success. For instance, Ellis and Nigg (2009) assessed parents of 181 children (129 of whom were diagnosed with ADHD, and 52 who served as controls), and examined how parenting practices influenced child's symptoms. Results indicated that when mothers engaged in inconsistent discipline, there were negative child-behavioral outcomes across ADHD domains, and inconsistent discipline by fathers was associated with increased inattention symptoms in children. In addition, low paternal involvement was also related to child inattention relative to ADHD. Such findings highlight the need for consistent parent involvement and discipline by both parents. Given findings such as these, including paternal viewpoints is needed, to specifically address ways to increase paternal involvement. If this occurs, it may serve the dual purpose of helping decrease their child's symptoms, while also positively influencing the mental health and functioning of the mother.

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APPENDICES

Appendix A

Information Statement

The Department of Educational Psychology at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are conducting this study to better understand variables that influence parents parental perceptions of the treatment process related to their children who exhibit ADHD/ADD symptoms. This will entail your completion of a survey. Your participation is expected to take approximately 20-40 minutes. The content of the survey should cause no more discomfort than you would experience in your everyday life.

Although participation may not benefit you directly, the information obtained from this study will help us gain a better understanding of variables which contribute to parents' perceptions of their child's ADHD symptoms. Your participation is solicited, although strictly voluntary. Your name will not be associated in any way with the research findings. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. No personally identifying information will be gathered from you using the MTurk system. Your unique MTurk identification number will be collected in order to properly disperse payment upon completion of the survey. The information that we do gather will be kept on an encrypted flash drive that only the researchers will have access to. It is possible, however, with internet communications, that through intent or accident someone other than the intended recipient may see your response.

You will be paid $1.50 for your participation in this study. This payment to you will be distributed using the Mturk reimbursement system. Payment will only be distributed for surveys that are complete and include seemingly honest information. **Participants whose surveys include irrelevant or erroneous information, particularly for the open-ended questions, will not be reimbursed.**

By clicking "Yes" and completing this survey, you are indicating that you are willing to take part in this study and that you are female, at least 18 years old, and you satisfy the eligibility requirements outlined in the MTurk posting. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email irb@ku.edu.

If you agree to participate in the study, are over the age of 18, are the primary caretaker of a child who is aged 6-12 who demonstrates some degree of difficulty with focus, attention, and/or hyperactivity, click 'yes' below to participate. Click 'no' to exit the survey if you do not wish to participate.

Sincerely,

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Appendix B

MTurk Study Announcement

Mothers of a child with attention, focus, or hyperactivity difficulty needed

The purpose of this study is explore parental variables in relation to their children who demonstrate symptoms of ADHD. In order to be eligible to participate, you must be **a female, who is at least 18 years of age**, and has **a child in your primary care who displays some symptoms ADHD** (hyperactivity, impulsiveness, and/or inattention).Your **child must be between the ages of 6-12** in order to participate. Your participation will include the completion of several questionnaires, which should take no longer than 20-40 minutes to complete. Upon completion and review of your responses, you will be reimbursed $3.50 for your participation.

Appendix C

Demographic Measure

Please enter your Mechanical Turk Identification number. This number will be used to distribute payment upon completion and review of the survey.

The survey that follows will ask you many different questions including some about yourself, your family, and your child/children. We realize you may have more than one child for whom you are the primary caretaker. For the purpose of this survey, please **choose ONE child within your care who demonstrates at least some difficulty with attention, focus, and/or hyperactivity. Please think of this child when answering questions pertaining to your children.**

[The survey that follows will ask you many different questions including some about yourself, your family, and your child/children. We realize you may have more than one child for whom you are the primary caretaker. For the purpose of this survey, please **choose ONE child within your care who demonstrates at least some difficulty with attention, focus, and/or hyperactivity. Please think of this child when answering questions pertaining to your children.]** (Appears in Qualtrics prior to the initiation of the demographics survey which follows)

1) Please indicate your gender:

   □ Male
   □ Female
   □ Transgender

2) Please indicate your age in years

   _____ Years

3) Please indicate your race/ethnicity

   □ Native American/Alaskan Native
   □ African American
   □ Caucasian/European descent
   □ Asian/Pacific Islander
   □ Hispanic/Latino
   □ Multiethnic
   □ Other

4) What is your marital status?

   □ single
   □ divorced

- □ married
- □ widower
- □ separated
- □ other

5) Please indicate your level of education

- □ Some high school completed
- □ High school degree
- □ Associate's degree
- □ Master's degree
- □ Ph.D. / M.D.
- □ Other

6) How many adults are there in your family? _____

7) How many children are there in your family? _____

8) What is your family's yearly gross income? _____

9) Please indicate the race/ethnicity of your child

- □ Native American/Alaskan Native
- □ African American
- □ Caucasian/European descent
- □ Asian/Pacific Islander
- □ Hispanic/Latino
- □ Multiethnic
- □ Other

10) What is your child's gender _____ Male _____ Female

11) How old is your child? _____ (this will appear as a drop-down with ages 6-12 listed as answer options)

12) What grade is your child in school _____ (this will appear as a drop-down with grades Pre-K to 8+ listed as answer options)

13) Has your child received a diagnosis of ADD or ADHD/ADD from a qualified health practitioner?

- □ Yes, I have a child who has been diagnosed with ADD/ADHD
- □ No, I do not have a child who has been diagnoses with ADD/ADHD

If the participant answered yes the above question, the participant is asked to elaborate by answering the below questions (questions 14-16 will only be available to participants who endorsed the above question):

14) By whom was you child first diagnosed with ADHD/ADD?

- □ Family doctor/general practitioner
- □ Ph.D. Level psychologist
- □ Psychiatrist
- □ Master's level psychologist
- □ Unsure
- □ Other (Please explain): _____

15) At what age (approximately) was your child diagnosed (options appear from a drop-down menu)?

- □ Before age 5
- □ Age 6
- □ Age 7
- □ Age 8
- □ Age 9
- □ Age 10
- □ Age 11
- □ Age 12

16) Has your child ever received treatment **specifically** to address his or her ADD or ADHD symptoms? If so, please all treatments he or she has received:

- □ Medication (i.e., stimulant medication)
- □ Individual therapy
- □ Group therapy
- □ Parent education/training (attended by you)
- □ Skills training (i.e., social skills, homework group, academic management)
- □ Nutrition changes or other "natural remedies"
- □ My child has ADHD/ADD, but has not received any treatment yet

17) Has your child been diagnosed with any mental health disorders other than ADHD?

- □ Yes
- □ No

18) What mental health disorder(s) **other than ADHD**, has your child been diagnosed with? Please check all below that apply (this question will only be available to participants who answered "yes" to question 17):□ a mood disorder (anxiety or depression)

- □ Conduct disorder
- □ Oppositional defiant disorder
- □ Specific Learning Disability (i.e., dyslexia, reading, writing, or mathematics)
- □ Tourette's' or Tic disorder
- □ Bi-Polar I or II
- □ An Eating Disorder (i.e., anorexia, bulimia, binge-eating disorder, pica)
- □ Autism Spectrum Disorder

19) Has your child been serviced with an Individualized Education Plan (IEP) or 504 in school?

- □ Yes
- □ No

Appendix D

Parental Stress Scale

The following statements describe feelings and perceptions about the experience of being a parent. Think of each of the items in terms of how your relationship with your child or children typically is. Please indicate the degree to which you agree or disagree with the following items by placing the appropriate number in the space provided.

1 = Strongly disagree 2 = Disagree 3 = Undecided 4 = Agree 5 = Strongly agree

1	I am happy in my role as a parent.	
2	There is little or nothing I wouldn't do for my child if it was necessary.	
3	Caring for my child sometimes takes more time and energy than I have to give.	
4	I sometimes worry whether I am doing enough for my child.	
5	I feel close to my child.	
6	I enjoy spending time with my child.	
7	My child is an important source of affection for me.	
8	Having child gives me a more certain and optimistic view for the future.	
9	The major source of stress in my life is my child.	
10	Having a child leaves little time and flexibility in my life.	
11	Having a child has been a financial burden.	
12	It is difficult to balance different responsibilities because of my child.	

13	The behavior of my child is often embarrassing or stressful to me.	
14	If I had it to do over again, I might decide not to have children.	
15	I feel overwhelmed by the responsibility of being a parent.	
16	Having a child has meant having too few choices and too little control over my life.	
17	I am satisfied as a parent.	
18	I find my child enjoyable.	

Appendix E

Parenting Sense of Competence Scale (PSOC)

Instructions: Listed below are a number of statements. Please respond to each item, indicating your agreement or disagreement with each statement.

1. The problems of taking care of a child are easy to solve once you know how your actions affect your child.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

2. Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

3. I go to bed the same way I wake up in the morning—feeling I have not accomplished a whole lot.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

4. I do not know what it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

5. My mother was better prepared to be a good mother than I am.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

6. I would make a fine model for a new parent to follow in order to learn what she/he would need to know in order to be a good parent.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

7. Being a parent is manageable, and any problems are easily solved.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

8. A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

9. Sometimes I feel like I'm not getting anything done.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

10. I meet my own personal expectations for expertise in caring for my child.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

11. If anyone can find the answer to what is troubling my child, I am the one.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

12. My talents and interests are in other areas, not in being a parent.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

13. Considering how long I've been a parent, I feel thoroughly familiar with this role.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

14. If being a parent of a child were only more interesting, I would be motivated to do a better job as a parent.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

15. I honestly believe I have all the skills necessary to be a good parent to my child.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

16. Being a parent makes me tense and anxious.

1	2	3	4	5	6
Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree

Appendix F

Parental/Child Attachment – Parent Survey

Directions: Please answer each of the questions below. Please rate each item based upon how often you feel you experience each statement (from never to often).

How often would you say that…

	Often	Sometimes	Seldom	Never
1. You get along with your child	4	3	2	1
2. You feel that you can really trust your child	4	3	2	1
3. You just do not understand your child	4	3	2	1
4. Your child is too demanding	4	3	2	1
5. You really enjoy your child	4	3	2	1
6. Your child interferes with your activities	4	3	2	1
7. You think your child is terrific	4	3	2	1
8. You feel very angry toward your child	4	3	2	1
9. You feel violent toward your child	4	3	2	1
10. You feel proud of your child	4	3	2	1
11. You wish your child was more like others that you know	4	3	2	1

Appendix G

Conners' Parent Rating Scale – Revised (S)

Instructions: Below are a number of common problems that children have. Please rate each item according to your child's behavior in the last month. For each item, ask yourself, "How much of a problem has this been in the last month?", and circle the best answer for each one. If none, not at all, seldom, or very infrequently, you would circle 0. If very much true, or it occurs very often or frequently, you would circle 3. You would circle 1 or 2 for ratings in between. Please respond to each item.

	NOT TRUE AT ALL (Never, Seldom)	JUST A LITTLE TRUE (Occasionally)	PRETTY MUCH TRUE (Often, quite a bit)	VERY MUCH TRUE (Very Often, Very Frequently
1. Inattentive, easily distracted	0	1	2	3
2. Angry and resentful	0	1	2	3
3. Difficulty doing or completing homework	0	1	2	3
4. Is always "on the go" or acts if driven by a motor	0	1	2	3
5. Short attention span	0	1	2	3
6. Argues with adults	0	1	2	3
7. Fidgets with hands or feet or squirms in seat	0	1	2	3
8. Fails to complete assignments	0	1	2	3
9. Hard to control in malls or while grocery shopping	0	1	2	3
10. Messy or disorganized at home or school	0	1	2	3
11. Loses temper	0	1	2	3
12. Needs close supervision to get through assignments	0	1	2	3
13. Only attends if it is something s/he is very interested in	0	1	2	3
14. Runs about or climbs excessively in situations where it is inappropriate	0	1	2	3
15. Distractability or attention span is a problem	0	1	2	3
16. Irritable	0	1	2	3
17. Avoids, expresses reluctance about, or has difficulties engaging in tasks that require sustained mental effort (such as schoolwork or homework)	0	1	2	3
18. Restless in the "squirmy" sense	0	1	2	3
19. Gets distracted when given instructions to do something	0	1	2	3
20. Actively defies or refuses to comply with adults' requests	0	1	2	3
21. Has trouble concentrating in class	0	1	2	3
22. Has difficulty waiting in lines or awaiting turn in games or group situations	0	1	2	3
23. Leaves seat in classroom or in other situations in which remaining seated is expected.	0	1	2	3
24. Deliberately does things that annoy other people	0	1	2	3
25. Does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)	0	1	2	3
26. Has difficulty playing or engaging in leisure activities quietly	0	1	2	3
27. Easily frustrated in efforts	0	1	2	3

Appendix H

Parent Motivation Inventory

[For the remainder of the survey, **please imagine that a mental health professional whom you trust has recommended that you seek and begin treatment services for your child's difficulty with attention, focus, and/or hyperactivity.** The following items will ask you broad and specific questions about your feelings towards treatment for your child's difficulties in these areas. Please answer each question carefully based upon how you imagine you would feel, act, and respond in these situations.]

(Appears in Qualtrics prior to the initiation of the Parent Motivation Inventory)

For Each Question, decide how much you disagree or agree with the statement and circle the number.

	Strongly Disagree				**Strongly Agree**
1. My child's behavior has to improve soon	1	2	3	4	5
2. I am willing to work on changing my own behavior as it relates to managing my child.	1	2	3	4	5
3. It is very important for the well-being of my family that my child changes his/her behavior.	1	2	3	4	5
4. I am prepared to participate in treatment for several months in order to change my child's behavior.	1	2	3	4	5
5. Although the main problem is with my child's behavior, I believe I should be involved in treatment.	1	2	3	4	5
6. It is very important for the well-being of my child that he/she changes his/her behavior.	1	2	3	4	5
7. I am willing to change my current parenting techniques and try new ones.	1	2	3	4	5
8. I think the benefits of this treatment will be greater than the costs	1	2	3	4	5
9. I would like my child's behavior to change.	1	2	3	4	5
10. I am willing to try parenting techniques even if I think they might not work.	1	2	3	4	5
11. I want to be involved in my child's treatment at this point in time.	1	2	3	4	5
12. My child will experience many negative outcomes in life if his/her behavior does not change.	1	2	3	4	5

13. I am motivated to practice the techniques I will learn in session at home with my child.	1	2	3	4	5
14. I believe that my child's behavior cannot change without my involvement in treatment.	1	2	3	4	5
15. My family will experience many negative outcomes in life if my child's behavior does not change.	1	2	3	4	5
16. I am eager to participate in treatment.	1	2	3	4	5
17. I believe that changing my own behavior can cause my child's behavior to change.	1	2	3	4	5
18. I want my child's behavior to improve.	1	2	3	4	5
19. I am motivated to change the way I reward and punish my child if it will lead to improvement	1	2	3	4	5
20. I believe that I can learn to change my child's behavior.	1	2	3	4	5
21. I am motivated to participate in my child's treatment.	1	2	3	4	5
22. Participation in this treatment is a top priority in my schedule and that of my child.	1	2	3	4	5
23. I believe that I am capable of learning the skills needed to change my child's behavior.	1	2	3	4	5
24. I look forward to learning new techniques for managing my child's behavior.	1	2	3	4	5
25. I am motivated to work with a therapist in order to change my own behavior.	1	2	3	4	5

Appendix I

Treatment Acceptability Questionnaire: Multimodal Treatment

Directions:

Please imagine that you are bringing your child to treatment for his or her ADHD symptoms. The treatment provider has proposed a combined treatment approach for your child. This treatment will include parent education and training, medication, and behavioral therapy for your child. A combined treatment approach has been shown to be highly effective in decreasing ADHD symptoms in children. This treatment will require you attend one hour weekly parent training/education sessions, and to drop your child off for one-hour therapy sessions once a week, for a minimum of eight weeks. This will also require you to bring your child to 30 minute medication check-ins every couple months. Once medication is stable, check-ins will be reduced as needed.

Please answer the following information based on the above information.

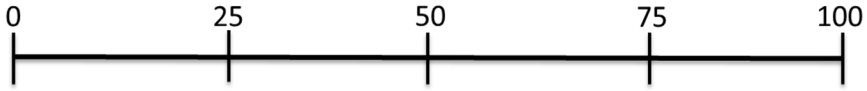
	Strongly Disagree					Strongly Agree
1 I am open to this treatment for my child's behavior.	1	2	3	4	5	6
2 My child's behavior is troublesome enough to justify the use of this treatment.	1	2	3	4	5	6
3 This treatment should be effective in changing my child's behavior.	1	2	3	4	5	6
4 I would be willing to be involved in this treatment with my child.	1	2	3	4	5	6
5 This treatment would not have any bad side effects for my child.	1	2	3	4	5	6
6 I like this treatment.	1	2	3	4	5	6
7 This treatment is a good way to handle my child's problem.	1	2	3	4	5	6
8 Overall, this treatment would help my child.	1	2	3	4	5	6
9 I would be able to dedicate the time needed for this treatment.	1	2	3	4	5	6

Appendix J

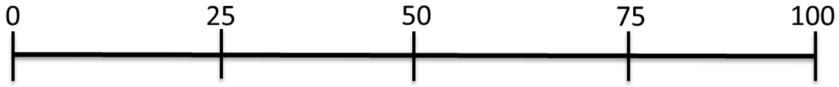
Openness toward Different Treatments

Directions: Please read the below statements which describe three different treatment options for your child's ADHD/ADD symptoms. After you are done reading each statement, please drag your cursor over the line below the statement and place it from 0 (absolutely not open to this treatment) to 100 (100% open to this treatment).

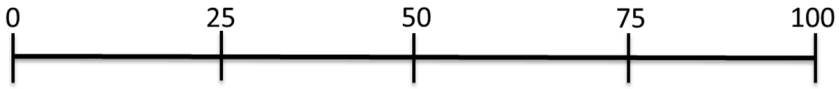
Please imagine that you are bringing your child to treatment for his or her ADHD symptoms. The treatment provider has proposed behavioral therapy as the primary treatment. This treatment teaches your child new ways to modify his or her behaviors and thoughts to help manage ADHD symptoms, in addition to teaching him or her ways to cope with their disorder in general. This treatment has been shown to be highly effective in decreasing ADHD symptoms in children. This treatment will require you to drop your child off for one-hour therapy sessions once a week, for a minimum of eight weeks.



Please imagine that you are bringing your child to treatment for his or her ADHD symptoms. The treatment provider has proposed medication-management as the primary treatment. This treatment involves giving your child daily medication to help manage his or her ADHD symptoms. This treatment has been shown to be highly effective in decreasing ADHD symptoms in children. This treatment will require you bring your child to 30 minute medication check-ins every couple months. Once medication is stable, check-ins will be reduced to an as needed basis.



Please imagine that you are bringing your child to treatment for his or her ADHD symptoms. The treatment provider has proposed a combined treatment approach for your child. This treatment will include parent education and training, medication, and behavioral therapy for your child. A combined treatment approach has been shown to be highly effective in decreasing ADHD symptoms in children. This treatment will require you attend one hour weekly parent training/education sessions, and to drop your child off for one-hour therapy sessions once a week, for a minimum of eight weeks. This will also require you to bring your child to 30 minute medication check-ins every couple months. Once medication is stable, check-ins will be reduced as needed.



Appendix K

Preference toward Different Treatments

Please **rank** the treatment options listed below from **1 (Most Preferred) to 3 (Least Preferred)**, based upon **your preference** for each treatment for your child's ADHD symptoms. Please read the description of each treatment option when making your decision.

1 = Most Preferred **2 = Next Most Preferred** **3 = Least Preferred**

☐ Medication Treatment

This treatment involves giving your child daily medication to help manage his or her ADHD symptoms. This treatment will require you bring your child to 30 minute medication check-ins every couple months. Once medication is stable, check-ins will be reduced to an as needed basis.

☐ Behavioral Therapy

This treatment teaches your child new ways to modify his or her behaviors and thoughts to help manage ADHD symptoms, in addition to teaching him or her ways to cope with their disorder in general. This treatment will require you to drop your child off for one-hour therapy sessions once a week, for a minimum of eight weeks.

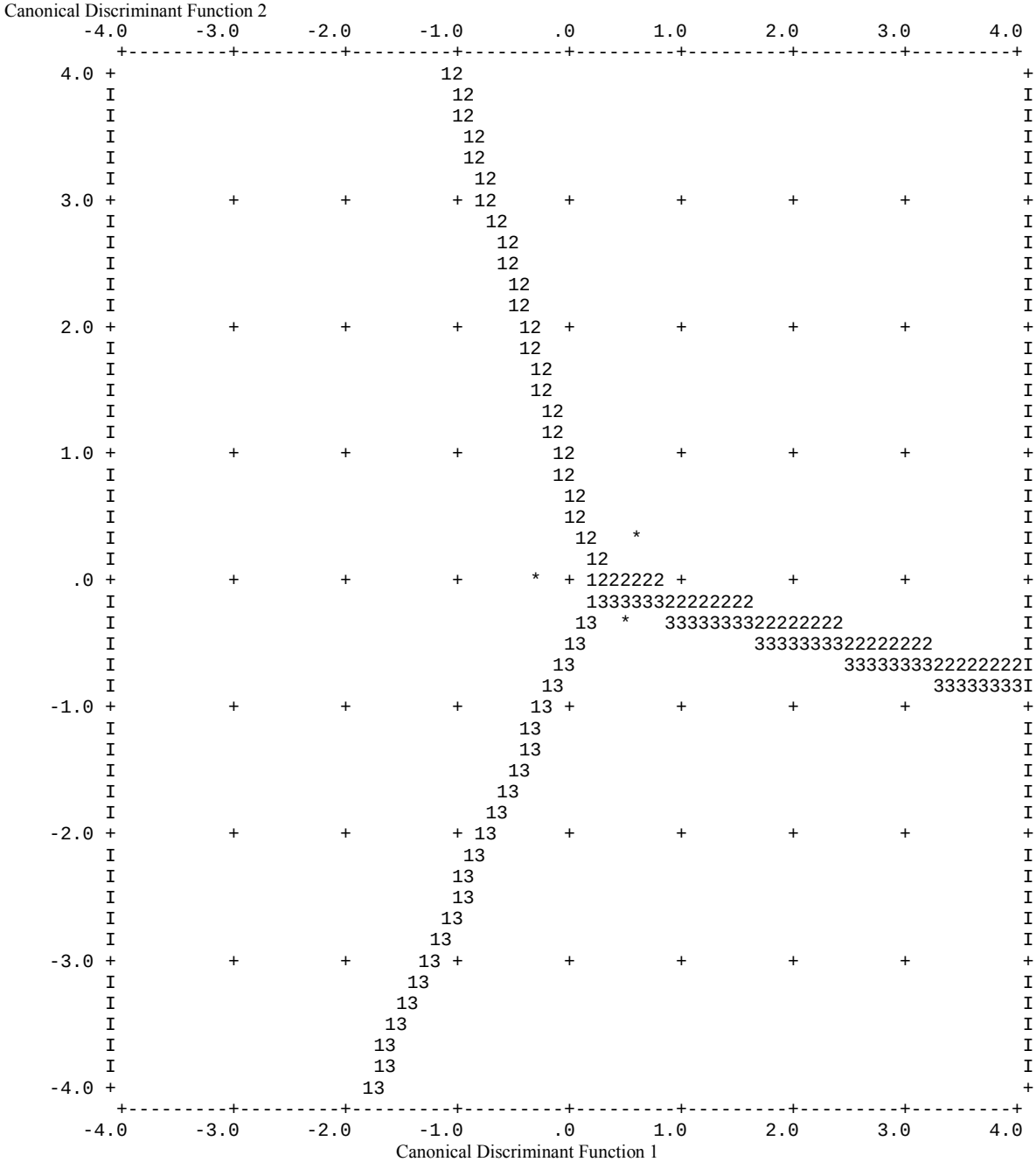
☐ Multimodal Treatment

This treatment will include parent education and training, medication, and behavioral therapy for your child. This treatment will require you attend one hour weekly parent training/education sessions, and to drop your child off for one-hour therapy sessions once a week, for a minimum of eight weeks. This will also require you to bring your child to 30 minute medication check-ins every couple months. Once medication is stable, check-ins will be reduced as needed.

Appendix L

Figure 1

Territorial Map Displaying First and Second Discriminant Functions.



1 = Behavioral Therapy as 1st choice, 2 = Medication as 1st choice, 3 = Multimodal treatment as 1st choice.
**Indicates a group centroid.*